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Publication

A BRIEF

SUBMITTED TO THE

ROYAL COMMISSION ON HEALTH SERVICES

BY THE

CANADIAN DENTAL ASSOCIATION
L'ASSOCIATION DENTAIRE CANADIENNE

MARCH 1962



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ROYAL COMMISSION ON HEALTH SERVICES

Public Hearings, Ottawa, March 1962

Appearing for the Canadian Dental Association-
L'Association Dentaire Canadienne.

Dr. William Miller, Vancouver B.C.,
President

Dr. Remy Langlois, Quebec, P.Q., Member
of the Executive Council

Dr. Don W. Gullett, Toronto, Ontario
Secretary

Dr. William G. McIntosh, Toronto, Ontario
Past President, Chairman of Steering
Committee for preparation of the brief

Dr. James D. McLean, Halifax, N.S., Dean,
Faculty of Dentistry, Dalhousie
University, Past Chairman, Council
on Education, Canadian Dental Association

Dr. Robert M. Grainger, Toronto, Ontario,
Professor of Biometrics, Director of
the Burlington Orthodontic Research
Centre, Faculty of Dentistry,
University of Toronto

Miss B. Isabel Boyd, Director, Bureau of
Economic Research, Canadian Dental
Association

TABLE OF CONTENTS

Summary of Recommendations	(ix)
Introduction	1
Dental Needs	9
(a) Dental Diseases and their Prevention	9
(b) Prevalence and Incidence of Dental Disease	10
(c) Utilization and Cost of Dental Services	12
(d) Reasons for Dental Neglect	12
(e) Manpower and Financial Implications	13
Dental Services	14
(a) Canada's Dental Resources	14
(b) Future Requirements	15
(c) Organization of Private Dental Practice	15
(d) Dental Auxiliaries	16
(e) Preventive Services	18
(i) Fluoridation	18
(ii) Dental Health Education Programs	19
(f) Treatment Programs	20
(g) Hospital Dental Services	21
Dental Education	26
(a) Present Facilities	26
(b) Future Needs	27
(c) Dental Students	27
(d) Post-graduate Education	28
(e) Recruitment	29
(f) Auxiliary Personnel	30
Dental Research	35
(a) Development of Dental Research in Canada	36
(b) Dental Research Contribution	37
(c) Future of Dental Research	38
Conclusions and Recommendations	
(a) Conclusions	41
(i) Reduce the Need and Raise the Demand for Dental Care	41
(ii) Increase the Supply of Dental Services	41
(iii) Dental Insurance Plan	42
(b) Recommendations	46
(i) Fluoridation	46
(ii) Dental Public Health Education Programs	48
(iii) Dental Research	48
(iv) Treatment Programs for Public Assistance Beneficiaries	49
(v) Dental Health Study	50
(vi) National Dental Health Index	50
(vii) Dental Schools	50
(viii) More Dental Teachers	51
(ix) Better Salaries for Public Health Dentists	51
(x) More Specialists	52
(xi) Recruitment	52
(xii) University Fees	53
(xiii) Dental Student Loan Fund	53
(xiv) Expenses of Post-graduate Education	54
(xv) Students from Rural Areas	55
(xvi) Placement of Dentists	55
(xvii) Rural and Remote Areas	56

(xviii) Extension of Auxiliary Services	57
(xix) Education for Dental Technicians and Assistants	57
(xx) Hospital Dental Departments	58
(xxi) Admittance to Hospitals	58
(xxii) Outpatient Dental Clinics	58
(xxiii) Cleft Palate Centres	59

Appendices

I	The Nature, Causes, Control and Treatment of Dental Diseases	
(a)	Dental Caries	I-1
(b)	Periodontal Disease	I-4
(c)	Malocclusion	I-6
(d)	Congenital Anomalies	I-7
(e)	Lesions Requiring Surgical Treatment	I-8
II	Prevalence, Incidence and Treatment Level of Dental Disease	
(a)	Sources of Prevalence Data	II-1
(b)	National Dental Health Index	II-1
(c)	Indices of Dental Disease as used in National Dental Health Index	II-2
(d)	Obligations in Dental Statistics under World Health Organization	II-4
(e)	Inferences Regarding Canadian Dental Health Reflected by the National Dental Health Index	II-4
(i)	No Dental Defects	II-4
(ii)	No Caries Defects	II-5
(iii)	Visited Dentist	II-5
(iv)	Deciduous Tooth Mortality	II-7
(v)	Permanent Tooth Mortality	II-7
(vi)	Permanent and Deciduous Teeth Needing Restoration	II-7
(vii)	Space-Maintainers	II-8
(viii)	Orthodontic Appliance	II-8
(ix)	Indices of Dental Caries Prevalence	II-9
(x)	d.e.f. and D.M.F.	II-9
(xi)	Poor Oral Hygiene	II-9
(xii)	Abnormal Gingiva	II-10
(xiii)	Abnormal Occlusion	II-10
(f)	Difficulties in Estimating Treatment Needs of the Population	II-11
III	Preliminary Estimates of Dental Service Needs of the Population	
(a)	Treatment Requirements	III-1
(b)	Time Requirements	III-7
(c)	Personnel Requirements	III-7
(d)	Costs	III-8
IV	Utilization of Dental Services	
(a)	Per Cent of the Population Receiving Dental Care	IV-1
(i)	Canadian Sickness Survey	IV-1
(ii)	Survey of Dental Practice	IV-2
(b)	Personal Expenditures on Dental Care	IV-3

V	Reasons for Dental Neglect	
(a)	Income	V-1
(b)	Age and Sex	V-2
(c)	Region and Residence	V-3
(d)	Educational Level	V-5
(e)	Childhood Training	V-6
(f)	Other Factors	V-7
(g)	Summary	V-8
VI	Dental Resources	
(a)	Dentists in Canada, 1901-1961	VI-1
(b)	Comparisons with other Countries	VI-2
(c)	Provincial Distribution of Dentists	VI-3
(d)	Urban-Rural Distribution of Dentists	VI-5
(e)	Distribution of Dentists by Age	VI-5
(f)	Immigration and Emigration of Dentists	VI-8
(g)	Women Dentists	VI-8
(h)	Specialists	VI-8
(i)	Salaried Dentists	VI-9
(i)	Department of National Defence	VI-10
(ii)	Department of Veterans' Affairs	VI-10
(iii)	National Health and Welfare	VI-10
VII	Private Dental Practice	
(a)	The Economics of Practice	VII-1
(b)	Employment of Auxiliaries	VII-4
(c)	Practice Time	VII-5
(d)	Patients, Sitzings, and Capacity	VII-5
VIII	Auxiliary Personnel	
(a)	Dental Assistants	VIII-1
(b)	Dental Secretaries	VIII-2
(c)	Dental Hygienists	VIII-3
(d)	Dental Technicians	VIII-4
IX	Dentists Necessary to Maintain and Improve the Dentist/Population Ratio	IX-1
X	Dental Public Health Programs	
(a)	Government Programs	X-1
(i)	National Programs	X-1
(ii)	Provincial and Municipal Programs	X-1
(b)	Programs for Residents of Rural or Remote Areas	X-9
(c)	Programs Operated by Voluntary Organizations	X-11
XI	Fluoridation	
(a)	Communities Fluoridating and Population Affected	XI-1
(b)	Provincial Legislation	XI-3
(c)	Status of Fluoridation in Canadian Provinces	XI-5
(d)	Efficacy of Fluoridation	XI-5
XII	Dental Public Health Education Programs	
(a)	Purpose	XII-1
(b)	How Dental Health Educational Programs are Operated	XII-2
(i)	Activities in Schools	XII-4
(ii)	Activities in Pre-natal and Child Health Clinics	XII-5
(iii)	Activities with Community Dentists	XII-6
(iv)	Research	XII-6
(v)	Activities in the Community at Large	XII-7
	(iii)	

(c) Effectiveness of Dental Health Educational Programs	XII-7
XIII Dental Care Programs for Beneficiaries of Provincial Public Assistance	
(a) Ontario	XIII-1
(b) Manitoba	XIII-1
(c) Saskatchewan	XIII-2
(d) Alberta	XIII-3
(e) British Columbia	XIII-4
XIV Government Expenditures on Dental Health	
(a) National Health Grants	XIV-1
(b) Annual Government Expenditures on Dental Health	XIV-2
XV Post-Payment and Prepayment	XV-1
XVI Applicants to and Enrolment in Canadian Schools	
(a) Applicants	XVI-1
(b) Enrolment	XVI-1
XVII Admission of Students to Canadian Dental Schools	
(a) Procedure	XVII-1
(b) Preprofessional Requirements	XVII-3
(c) Foreign Graduates	XVII-3
(d) Aptitude Testing	XVII-5
XVIII Cost of Education to Students	XVIII-1
XIX Recruitment of Students and Placement of Graduates	
(a) Recruitment by the Profession	XIX-1
(b) Recruitment of Women Students	XIX-2
(c) Origin of Students and Destination of Graduates	XIX-5
(d) Financial Aid to Students	XIX-7
XX Dental Schools	
(a) Survey of Dental Schools	XX-1
(b) Present Facilities	XX-2
(c) Expansion Programs	XX-3
(d) Full and Part-Time Staff	XX-3
(e) Financing	XX-4
(f) Future Resources Possible with Present Training Facilities	XX-5
(g) Training Facilities Necessary to Improve the Dentist/Population Ratio	XX-7
XXI Licensure and Certification	
(a) Requirements for Licensure	XXI-1
(i) Citizenship	XXI-1
(ii) School of Graduation	XXI-1
(iii) National Dental Examining Board Certificate	XXI-1
(iv) Interim Licenses	XXI-2
(v) Fees	XXI-2
(b) National Dental Examining Board	XXI-2
(c) Specialist Certification	XXI-4
XXII Continuing Education of the Dental Profession in Canada	XXII-1

XXIII Education of Auxiliary Personnel

(a) Dental Hygienists	XXIII-1
(b) Dental Assistants	XXIII-3
(c) Dental Technicians	XXIII-4

XXIV Dental Research

(a) Development of Dental Research in Canada	XXIV-1
(b) Dental Research Contributions	XXIV-4
(c) Research Versus Treatment Costs	XXIV-6
(d) Canadian Dental Research Workers	XXIV-7
(e) Future of Dental Research	XXIV-7

XXV New Zealand School Dental Nurse Scheme

XXV-1

XXVI Bibliography

XXVI-1

Tables

Table 1	Children Eligible for Dental Treatment by Years of Operation of Program	-43
Table I-1	Caries Attack Rates of Dentists' Children Compared to Population in Terms of D.M.F. and d.e.f. Teeth	I-3
Table I-2	Caries Control Measures Mentioned by Dentist Fathers of Children Surveyed	I-3
Table II-1	National and Provincial Estimates of Dental Health of Children 7 to 13	II-6
Table II-2	Percentage of Ontario Civil Servants with Poor Oral Hygiene	II-10
Table III-1	Dental Service Needs	III-3
Table IV-1	Per Cent Population Reporting Dental Care, by Age and Sex, 1950 - 1951.	IV-1
Table IV-2	Average Dental Visits per Person Reporting Dental Care, by Age and Sex, 1950 - 1951.	IV-2
Table IV-3	Per Cent Population Reporting Dental Visits and Average Dental Visits per Person Reporting Dental Care, by Region, 1950 - 1951.	IV-2
Table IV-4	Estimated Per Cent of Population Receiving Dental Care by Province 1953 and 1958	IV-3
Table IV-5	Average Expenditure on Dental Services per Family and per Spending Family, by Region, 1950 - 1951	IV-3
Table IV-6	Distribution of Families with Dental Expenses by Amount of Expenditure, 1950 - 1951	IV-4
Table IV-7	Total and Per Capita Expenditures on Dentists' Services and Per Cent of all Expenditures on Personal Health Care, Canada, 1953 - 1960	IV-4
Table IV-8	Per Capita Expenditures for Dental Care, in Actual and Constant Dollars, 1953 - 1960	IV-5
Table IV-9	Percentages of Families Reporting Expenditures on Dental Care and Average Dollar Expenditure per Family, by City, Nine Cities, 1957	IV-5
Table V-1	Dental Services, by Family Income	V-2
Table V-2	Per Cent Population Reporting Dental Visits, Population per Dentist, and per Capita Personal Disposable Income, by Region, 1950-1951	V-4
Table V-3	Utilization Rate of Dental Services per 1,000 Public Assistance Beneficiaries, by Type of Service and Residence, 1959-1960	V-5

Table V-4	Per Cent Going to Dentist Preventively by Income and by Education	V-6
Table V-5	Per Cent Not Going to Dentist when Dental Work Needed, by Income and Education	V-6
Table V-6	Reasons Given by Persons Who do not See a Dentist Regularly for not Seeing One More Often	V-8
Table VI-1	Number of Dentists and Population per Dentist 1901-1961	VI-1
Table VI-2	Population per Dentist, European Countries, 1956-1958	VI-3
Table VI-3	Number of Dentists and Population per Dentist, by Province, 1961	VI-3
Table VI-4	Absolute Increase in Dentists and Per Cent Increase in Dentists and Population, by Province 1938-1961 and 1951-1961	VI-4
Table VI-5	Population per Dentist, by Size of Community and Province 1960	VI-5
Table VI-6	Median Age of Canadian Dentists, by Province and Size of Community, 1960	VI-6
Table VI-7	Per Cent of Dentists by 5 Year Age Group, by Province, 1960	VI-7
Table VI-8	Women Dentists Registered in Canada, by Province, 1961	VI-8
Table VI-9	Number of Full-Time Dental Specialists by Province, 1961	VI-9
Table VI-10	Dentists Employed in Health Services, 1961	VI-9
Table VII-1	Average Gross and Net Incomes of Dentists, by Province, 1958	VII-1
Table VII-2	Average Net Income of Non-Salaried Dentists, by City Size, 1958	VII-2
Table VII-3	Average Net Income of Non-Salaried Dentists, by Age, 1958	VII-2
Table VII-4	Per Cent of Average Practice Expenses, by Item of Expense, 1958	VII-2
Table VII-5	Average Net Income by Type of Dentist, 1958	VII-4
Table VII-6	Percentage Distribution of Dentists by Number of Employees per Dentist, by Province, 1958	VII-5
Table VII-7	Average Number of Patients and Sitzings per Dentist and Average Number of Sitzings per Patient, by Province, 1958	VII-6
Table VIII-1	Duties Performed by Dental Assistants in Canada	VIII-2
Table VIII-2	Dental Hygienists, 1961	VIII-4
Table VIII-3	Ratio of Dental Technicians to Dentists, by Province, 1951	VIII-5
Table VIII-4	Estimated Number of Technicians, by Province, 1961	VIII-5
Table IX-1	Population Estimates for Canada, 1960 - 1980	IX-1
Table IX-2	Dentists Necessary to Maintain and Improve Dentist/Population Ratio	IX-2
Table XI-1	Per Cent of Total Provincial Population in Municipalities with Controlled Fluoridation 1961	XI-1
Table XI-2	Municipalities with Controlled Fluoridation, January 1961	XI-2
Table XI-3	Summary of Fluoridation Legislation, by Province	XI-4
Table XI-4	General Status of Fluoridation in Canadian Provinces, 1961, As Obtained from Survey of Provincial Dental Health Directors	XI-7

Table XI-5	Percentage of Children Having Caries-Free Permanent Teeth	XI-6
Table XIII-1	Per Cent Utilization of Dental Services by Public Assistance Category, Saskatchewan, 1959 - 1960	XIII-3
Table XIII-2	Average Cost Per Patient for Dental Services Received under the Bureau of Public Welfare Act, Alberta, 1960	XIII-4
Table XIII-3	Per Cent of Beneficiaries Eligible for Dental Treatment under the Bureau of Public Welfare Act, Alberta, who utilized the Services, 1947 - 1960	XIII-5
Table XIV-1	Total National Health Grants Expended, Estimated Amount and Percentage of these Grants Spent on Dental Health, 1948-1961	XIV-1
Table XIV-2	Annual Expenditures on Dental Care by Federal Government Departments	XIV-2
Table XIV-3	Annual Expenditures on Dental Care by Provincial and Municipal Governments	XIV-3
Table XV-1	Number of Dentist Members, Patients' Accounts and Average Amount of Accounts, D.S.P.I. Post-payment Plans, by Province, 1961	XV-2
Table XVI-1	Applications to Canadian Dental Schools 1961, Per Cent Increase over 1960 and Ratio of 1961 Applications to Freshman Accommodation	XVI-1
Table XVI-2	Undergraduates Enrolled in Canadian Dental Schools, 1961 - 1962	XVI-2
Table XVI-3	Women Dental Students Enrolled in Canadian Dental Schools, 1961 - 1962	XVI-3
Table XVI-4	Wastage of First Year Students, 1960-1961	XVI-3
Table XVI-5	Students Graduating from Canadian Dental Schools, 1961	XVI-3
Table XVI-6	Number of Undergraduate Students Enrolled in Canadian Dental Schools, 1957 - 1961	XVI-3
Table XVI-7	Dental Students per 100,000 Population by Province, 1957 - 1960	XVI-4
Table XVI-8	Per Cent of all Students at School who are from Outside the Province in Which the Dental School is Located, 1961 - 1962	XVI-5
Table XVII-1	Admission Procedures in Canadian Dental Schools	XVII-1
Table XVIII-1	Cost of Dental Education to Students	XVIII-1
Table XIX-1	Percentage of Dentists who are Women, 1958	XIX-3
Table XIX-2	Percentage of Professional People who were Women, by Profession, 1951	XIX-4
Table XIX-3	Percentage Distribution of Dental Graduates by Size of Communities of Origin and Practice	XIX-5
Table XIX-4	Percentage of Dentists by Communities of Origin and Practice Compared with Distribution of Population	XIX-6
Table XIX-5	Provincial Government Assistance to Dental Students, Alberta, 1960-1961	XIX-7
Table XIX-6	Number of Bursaries Granted to Manitoba Dental Students, 1958-1960	XIX-8
Table XX-1	Capacity of Canadian Dental Schools 1952 - 1961	XX-3
Table XX-2	Ratio of Full-Time and Part-Time Academic Staff to Dental Undergraduates, 1961	XX-4

Table XX-3	Per Student Amount of Money Available for Operation of Dental School, 1961 - 1962	XX-5
Table XX-4	Per Cent of Total Budget Allocated to Academic and Non-Academic Salaries	XX-5
Table XX-5	Estimated Dental Manpower, Canada, 1962 - 1980	XX-6
Table XX-6	Projected Population per Dentist, Canada, 1965 - 1980	XX-7
Table XXI-1	Requirements for Dental Licensure	XXI-3
Table XXII-1	Approximate Current Capacity for Training Specialists	XXII-1
Table XXIII-1	Enrolment in Dental Hygiene Courses at Canadian Dental Schools, 1961-1962	XXIII-1
Table XXIII-2	Cost of Two Year Dental Hygiene Course per Student, to Student and to School	XXIII-2
Table XXIV-1	Dental Research Support, Canada, 1945 - 1961.	XXIV-2
Table XXIV-2	Graduate and Undergraduate Dental Student Support, Canada to 1961	XXIV-3
Table XXIV-3	Dental Research Project Support, Canada, 1945 - 1961	XXIV-3
Table XXIV-4	Treatment Versus Research Costs, Dentistry and Medicine, Canada, 1960	XXIV-6
Table XXIV-5	Estimated Funds Necessary to Support Dental Research, Canada	XXIV-8

Figures

Figure V-1	Persons Reporting Dental Care Per 1,000 Population	V-3
Figure VI-1	Population per Dentist, Canada, 1901 - 1961	VI-2
Figure VI-2	Percent of Dentists by 5 Year Age Group, Canada, 1960	VI-6
Figure VII-1	Comparative Changes in Average Gross Income and Average Office Hours per Week by Age, 1958	VII-3
Figure XI-1	Population in Fluoridated Communities, 1956 - 1961	XI-3
Figure XI-2	Decayed, Missing and Filled Permanent Teeth per Child, Sarnia, Brantford and Stratford, 1948 - 1959	XI-8
Figure XVI-1	Dental Students per 100,000 Population	XVI-4
Figure XXIV-1	Funds Provided to Support Dental Research in Canada, by Source, 1945 - 1961	XXIV-4

SUMMARY OF RECOMMENDATIONS

This submission presents a comprehensive analysis of the provision of dental services to the Canadian people. It has six major divisions:

Introduction (describes the Canadian Dental Association)

Dental Needs

Dental Services (documented and

Dental Education supported by

Dental Research factual appendices)

Conclusions and Recommendations

Detailed recommendations begin on page 46. They are synopsized here, numbered as in the brief.

- (i) That provincial legislatures make mandatory the fluoridation of communal waters.
- (ii) That dental public health educational programs be organized and actively promoted in all health regions or units.
- (iii) That the amount of money available for dental research be increased commensurate with the increased demands of research projects.
- (iv) That the provinces institute dental treatment benefits for all beneficiaries of presently operating public assistance programs.
- (v) That the Royal Commission on Health Services, in cooperation with the dental profession, undertake a definitive study of dental health needs and factors influencing demand for dental care.
- (vi) That the federal government establish machinery to maintain, through annual compilation of dental health data, the dental health index initiated by the Canadian Dental Association.

- (vii) That immediate planning be undertaken to provide additional dental schools at the University of British Columbia, at the University of Saskatchewan, at Laval University, and one additional school in Ontario; that the Faculty of Dentistry at Dalhousie University be expanded; and that facilities for training dental hygienists be made available at the University of Montreal, McGill University, the University of Manitoba, and at the four additional dental schools recommended.
- (viii) That federal grants to universities be increased in order to permit dental faculties to improve the ratio of full-time staff to part-time staff.
- (ix) That health agencies employing dentists adopt dental salary schedules comparable to incomes available in private practice.
- (x) That more government funds be made available to universities to enable dental schools to expand graduate programs for training specialists and to add these programs where they do not now exist.
- (xi) That this royal commission undertake a detailed, thorough study of recruitment to the health professions.
- (xii) That the federal government increase its annual per capita grants to universities sufficiently to permit gradual reduction of fees, beginning with the more expensive courses such as dentistry, until, at the earliest opportunity, they may be removed entirely.
- (xiii) That a revolving loan fund be established for undergraduate and post-graduate dental students, with initial capital to be provided by matching contri-

butions of \$50,000 each from the Canadian Dental Association and the federal government.

- (xiv) That federal and provincial income tax regulations be amended to permit tax relief for dentists who attend training courses under auspices of universities or recognized dental associations.
- (xv) That dental schools give preference to applicants from rural areas, all other factors being equal, as long as the uneven urban-rural distribution of dentists continues.
- (xvi) That financial and other inducements be provided to encourage more dentists to settle in municipalities without resident dentists.
- (xvii) That provincial governments engage full-time travelling dentists to serve areas with populations too scattered to warrant resident dentists.
- (xviii) That dental schools be provided with the financial support required to carry out pilot studies and operational research to determine the best methods of employing auxiliary personnel.
- (xix) That the training of future dental assistants and dental technicians be carried out using clinical facilities of university dental schools.
- (xx) That dental departments be established in all public hospitals where dental personnel are available to provide both in-patient and out-patient services.
- (xxi) That provincial public hospital acts or regulations be amended to permit dentists appointed to hospital staffs to admit patients to hospitals.

- (xxii) That out-patient dental clinics be established in public general hospitals, especially to assist in meeting the needs of marginal income groups.
- (xxiii) That centres for treatment of cleft palate cases be established in children's hospitals and in general hospitals where adequate paediatric and associated services are available.

INTRODUCTION

1. The Canadian Dental Association is the national organization of the dental profession in Canada.
2. The ten provincial dental licensing bodies are corporate members of the Association. They are
 Newfoundland Dental Society
 Dental Association of Prince Edward Island
 Provincial Dental Board of Nova Scotia
 New Brunswick Dental Society
 College of Dental Surgeons of the Prov. of Quebec
 Royal College of Dental Surgeons of Ontario
 Manitoba Dental Association
 College of Dental Surgeons of Saskatchewan
 Alberta Dental Association
 College of Dental Surgeons of British Columbia.

Individual members are licensed dentists whose names have been submitted by corporate members. The membership of the Canadian Dental Association thus includes virtually all practising dentists in Canada. The Association has almost 6,000 individual members, one-sixth of whom are French-speaking, plus honorary and associate members.

3. Close to 20 per cent of Canada's dentists attended a special meeting in September 1902 at McGill University in Montreal for the purpose of organizing the Canadian Dental Association. Considering the exigencies of time and travel of that day, it is remarkable that all parts of Canada, from Halifax to Victoria, were represented by the dentists attending this first meeting. With the decision of the nine provincial licensing bodies to become corporate members, the national organization was revamped in 1942. (The Newfoundland Dental Society became the tenth corporate member in 1950, shortly after confederation.) To stabilize the

finances of the national body, the corporate members agreed to make annual grants. A permanent secretary was appointed to direct the activities of the revitalized association. It was incorporated by act of parliament, with the official names "Canadian Dental Association - L'Association Dentaire Canadienne".

4. The stated objectives of the Canadian Dental Association are as follows:

- a. To cultivate and promote the art and science of dentistry and all its collateral branches, and to maintain the honour and interests of the dental profession;
- b. To conduct, direct, encourage, support or provide for exhaustive dental and oral research;
- c. To elevate and sustain the professional character and education of dentists;
- d. To promote mutual improvement, social intercourse and goodwill among the members of the profession;
- e. To enlighten and direct public opinion in relation to oral hygiene, dental prophylaxis, oral health and advanced scientific dental service;
- f. To disseminate knowledge of dentistry and dental discoveries;
- g. To have cognizance of and safeguard the common interests of the members of the dental profession;
- h. To publish dental journals, reports and treatises;
- i. To do all further or other lawful acts and things as are incidental or conducive to the attainment of the above objects.

From its earliest days, the Association has striven assiduously to meet these objectives.

5. The organizational structure of the Association is as follows:

President	
Board of Governors	
Executive Council	
Treasurer	Secretary Editor
Councils:	Committees:
Constitution and By-Laws	Auxiliary Services
Education	Conventions
Ethics	Dental Services
Journalism	Headquarters Property
Legislation	Hospital Services
Public Health	Necrology
Research	Nomenclature
	Nominations
	Specialists and Specialization
	War Memorial Awards
	(Various special committees and sub-committees as required.)
Sections:	
Canadian Society of Oral Surgeons	
Canadian Society of Orthodontists	
Canadian Academy of Periodontology	
Canadian Society of Dentistry for Children.	

Bureaux:

Bureau of Economic Research
Bureau of Public Information

A brief summary of the activities of some of these groups provides an insight into the interests of the Association.

6. The Council on Education is responsible for an accreditation program of all Canadian dental schools. A survey team of three members visits each dental school every five years and conducts an exhaustive investigation. The results of these surveys have been of inestimable value in advancing the progress of dental education in Canada.
7. The Council on Education retains the services of a professional (non-dental) educator to advise it and to assist the dental schools. The Council also conducts a series of annual conferences of the teachers of various phases of the dental curriculum.
8. Another of the Council's responsibilities is to support and foster the National Dental Examining Board, in co-operation with the provincial dental legal bodies, in order that facilities may be available to members of the dental profession to qualify on a national basis for registration to practise. Consideration of the recruitment of suitable students to dentistry is a Council responsibility with duties delegated to the National Recruitment Committee.
9. In general, the Council recommends alterations in education for the improvement and welfare of personnel in dentistry, in order to develop personnel equipped with adequate knowledge to fulfill the requirements of the practice of dentistry and to take their proper positions in society as a whole.
10. The Council on Research has fifteen members, some of whom represent other scientific disciplines. This Council is to procure funds for research in dentistry; to disseminate scientific knowledge; to support, establish and encourage research, and to develop trained research personnel. One of its important responsibilities is its fellowship program for undergraduate and graduate dental students.

The Association's current annual budget for fellowships is about \$10,000.

11. Members of the Research Council act also as the board of directors of the Canadian Dental Research Foundation (CDRF). CDRF was organized under federal charter in 1920 when Canada's dentists contributed about \$20,000 to a fund directed at the promotion of dental research activities. The first Canadian Conference on Dental Research, held at Toronto in October 1961, was organized by CDRF to bring together Canadian dental research workers. Interest from the fund is used chiefly for the dissemination of scientific information.
12. The Council on Public Health includes the following among its duties:
 - to produce pamphlets, booklets, charts and other educational material for public and professional use;
 - to suggest means of effective participation by the profession in public health activities and programs;
 - to establish and maintain, through surveys, an index of the dental health of Canadians.
13. The Dental Services Committee for over fifteen years has focused its attention on trends in the public's demands for health care. This committee has guided the formation of Association policies concerning the provision of more good dental service to more people at reasonable cost. Evidence of these policies being translated into action is in the recent formation of provincial dental service corporations which may contract for the provision of prepayment, postpayment and welfare dental care plans. This committee has based its recommendations on continuous study of health care plans in all parts of the world.
14. The Auxiliary Services Committee has directed

formulation of Association policies concerning the effective employment of auxiliary personnel. This committee plays an active part in guiding the integration of more trained people to increase the productivity of dental offices, with a view to providing service to more patients. The Association is on record as favouring an increase in both the number of auxiliary workers and the duties they should be trained to perform under the responsible supervision of the dentist.

15. Approximately 200 members of the Association participate voluntarily in the work of its committees and councils and give unstintingly of their time, energy and talents. Many others devote their energies to the special interests of the four sections, oral surgery, orthodontics, periodontics, and dentistry for children. These groups are affiliated with the Canadian Dental Association but have their own officers, by-laws and the like. Several other dentists represent the Association through participation in the affairs of outside organizations. Some of the groups supported by the Association are these:

Canadian Conference on Children

Canadian Conference on Education

Canadian Science Fairs Council

Emergency Health Services Advisory Committee

Health League of Canada

National Cancer Institute of Canada.

16. In order to keep its members abreast of current scientific and other developments, the Association publishes the bilingual monthly Journal of the Canadian Dental Association. The Association employs a dentist full time as editor of this publication along with a part-time editor of the French section. Dozens of pamphlets, booklets and leaflets on

dental health, education, research and other subjects are published by the Association and distributed in the millions of copies. Through its own printing facilities, the Association makes these publications available at the lowest possible cost for distribution by dentists, government health departments and others to the public.

17. A dental library in the Association's own headquarters building provides circulation of dental literature by mail to dentists all across Canada.
18. These activities are but parts of the total administrative function carried out by the permanent staff of fourteen people in the Association's headquarters building at 234 St. George Street in Toronto.
19. The policy-making and supreme authoritative body of the Association is the Board of Governors. This Board consists of the president of the Association, the president-elect, the immediate past president, and representatives elected or appointed by each corporate member. The current total is eighteen members. The Board meets annually immediately prior to the national convention and in the same locality. Its meetings are open to all members of the Association, providing a forum for expression of individual opinions. It is the policy of the Association to move its annual meeting from province to province each year in order to bring the educational benefits to members in all regions.
20. Reports, including policy recommendations of all councils, committees and bureaux, are discussed thoroughly by the Board of Governors. Other matters come directly to the Board from corporate members, other dental organizations and individuals, as resolutions. Through careful consideration by councils and committees, followed by thorough discussion at meetings of the Board of Governors,

policies and projects of the Canadian Dental Association are determined. Transactions of the Board's annual meetings are printed and distributed to every individual member of the Association.

21. The Canadian Dental Association is truly representative of the dental profession and justifiably can be termed the national voice of Canadian dentistry. It is in this capacity that the Association submits this brief for consideration by this Royal Commission.

DENTAL NEEDS

Appendix

22. The unnecessary tragedy of dental diseases is one of Canada's gravest health problems. Dental diseases are largely preventable: yet they are virtually universal. Almost everyone needs dental care; yet in any given year only one-third of the population visits a dentist.
23. Behind these paradoxes lie the reasons for this country's dental health problem. And the provision of treatment services is not the answer. In fact, dental manpower would be swamped and financial resources severely taxed if an attempt were made to cope, by means of treatment alone, with the present magnitude of Canada's true dental needs. Instead, the prevalence and incidence of dental ills must be reduced. By their very nature, dental diseases defy defeat without widespread application of preventive measures.

(a) DENTAL DISEASES AND THEIR PREVENTION 1

24. Tooth decay is by no means the sum total of dental diseases. They may be grouped as dental caries, diseases of supporting tissues, malocclusion, congenital defects, and lesions requiring surgical treatment. Diagnosis of these conditions calls for a great depth of knowledge of the growth and development of the face, the gross anatomy and microanatomy of the tissues, the histochemistry and biochemistry of tissue metabolism, and recognition of pathological conditions. The particular type of treatment required is dependent upon the tissue affected. For hard dental tissues elaborate technical restorative procedures have been developed by the profession and because of their very success interest in prevention lags and an excessive amount of dental practice time has been

devoted to reparative procedures.

25. With the single exception of the protection afforded by I(a) community water fluoridation, the prevention of dental caries is possible only with the persistent and willing cooperation of the individual. It must be ensured that an optimal diet is followed strictly during the developmental years (beginning during uterine life) and certain measures must be undertaken after tooth eruption which will reduce the intensity or duration of the caries attack. Dental science has shown that caries can be reduced considerably through such measures as properly cleaning the teeth immediately after eating and eliminating sweet foods between meals. Sugar is an important factor in promoting tooth decay. XII(a)
26. Simple preventive measures, understood and applied, are very effective, as children of Canadian dentists can attest. Dentists' children between five and nine years of age have had 40 - 50 per cent less tooth decay than have all children. Table I-1
27. No mass measures for the control of periodontal disease are known except in the sense of public health education to promote good nutrition and oral hygiene. I(b)
28. Cases of malocclusion can frequently be prevented from developing if some relatively minor treatment is given to the patient at an early age. I(c)
- (b) PREVALENCE AND INCIDENCE OF DENTAL DISEASE II
29. With our present level of knowledge, the true prevalence of dental diseases is either not exactly determinable or close to 100 per cent. Very little information on the prevalence of dental disease among adults exists in Canada. The majority of the population does not receive regular or complete dental treatment - even when there is no charge II(a)

for it. Therefore, information on treatment services received by public assistance beneficiaries is not representative of the need in the population as a whole.

30. Direct surveys of the population are necessary. These II(b) have been made only for children of seven to 13 years of age by the Canadian Dental Association's National Dental Health Survey. The National Dental Health Index emerging II(c) from the survey is being prepared to provide objective data for purposes of comparison to aid research and the planning and evaluation of dental public health programs. It was never intended to produce an estimate of the absolute frequency of cases needing treatment.
31. By the age of 13, according to the National Dental II(e) Health Survey, 98 per cent of Canadian children have one or more teeth decayed and 40 per cent of them have lost one or more permanent teeth. Only 13 per cent of the Table II-1 children between seven and 13 years of age have no untreated dental defects; each child has an average backlog of three teeth needing restoration.
32. Sixteen per cent of all children and almost 80 per II(e) cent of all adults have gingival infections. Between 50 and 70 per cent of the people have malocclusion.
33. The high level of dental disease in Canada is hardly surprising when the people's lack of interest in preventive measures is considered. Only eight per cent of the popula- XI tion drinks fluoridated water. Sugar consumption amounts to almost 100 pounds per person per year.(1) Even though oral hygiene is vital to good dental health, the oral hygiene II(e) of 30 per cent of Canadian children and 50 per cent of adults Table II-2 is very unsatisfactory.

(1) Dominion Bureau of Statistics, The Sugar Refining Industry, 1959, Table 19.

(c) UTILIZATION AND COST OF DENTAL SERVICES IV

34. The 1950-51 Canadian Sickness Survey reported that IV(a)
one Canadian in seven had visited a dentist during the year
and that \$32,900,000 (nine per cent of all health expenditures)IV(b)
was spent on dental care. According to information of its
own and from other governmental sources, the Canadian
Dental Association considers these estimates of utilization
and cost to be extremely low.

35. A 1958 survey conducted by the Canadian Dental
Association indicated that one third of the population had Table IV-4
received some dental treatment during that year. Provisional
information from the Department of National Health and
Welfare estimates that \$96,000,000 was spent on dental
services in 1960. Table IV-7

(d) REASONS FOR DENTAL NEGLECT V

36. The need for dental care is universal yet less than
one third of the population receives any treatment at all
during a year. There are many reasons for this discrepancy
between the need and demand for dental services.

37. Education and income separately and together are V(a)
strongly associated with going to the dentist. People who V(d)
think they need specific dental treatment, but who have not
visited a dentist, frequently mention inability to afford
dental services. Among groups which pay little or nothing
for their dental care, utilization rates seldom reach even V(a)
50 per cent. Among people who do see the dentist for
periodic preventive care, childhood training is a significant V(e)
factor in influencing them to do so. The shortage of dentists
is obviously an important factor in the low utilization of V(c)
dentists' services in rural areas and in certain regions
of the country.

38. There are, too, many psychological reasons preventing V(f)
people from seeking dental care. Apathy, negligence and
fear are among these reasons.

39. Most people realize that they are susceptible to dental V(g)
disease but, because they do not consider its consequences
to be truly serious, they do not seek periodic care. They
do not feel that the need for regular dental care is greater
than other needs or wants competing for their time and
money. They therefore often do not see a dentist until they
require major restorative treatment. This approach to
dental care is faulty from the standpoints of both health and
economics.

(e) MANPOWER AND FINANCIAL IMPLICATIONS III

40. To determine the possible implications of dental needs III(a)
in terms of manpower requirements and costs, some estimate
of treatment needs is necessary. The National Dental Health
Index was not designed to provide a direct estimate of
treatment needs, which vary according to the opinion of the
clinicians and the socio-economic conditions prevailing.
A wide study of Canada's dental health problem in the light
of the socio-economic factors which bear on the provision
of treatment is essential. Until such a study can be made,
only very hazardous guesses of treatment requirements in
terms of chair hours will be available.

41. With more research in preventive dentistry and more III(a)
public dental health education, it is highly probable that
the pattern of dental practice will change in the future.
Less time will be spent in the terminal treatment of gross
defects and more will be devoted to diagnosis and prevention.

DENTAL SERVICES

Appendix

42. Canada's dental resources are far from adequate to provide the volume of dental services needed by her citizens. Many more dentists are going to be necessary. Increased and extended use of auxiliaries offers one hope of increasing productivity. But the Canadian dental health problem cannot be solved simply by increasing treatment services available to and received by the public. The amount of dental disease requiring treatment must be reduced. It can be reduced most effectively and most economically by immediate nation-wide fluoridation of public water supplies and by the introduction and expansion of intensive programs of dental health education. To do this, dollars must be spent. All levels of government will have to increase substantially their expenditures for dental health.

43. As dental care is an important part of total health care and as the modern hospital is the community centre of health care, hospitals should have formally-organized dental services. Provincial regulations should be amended to assure that adequate provision is made for dental services in hospitals.

(a) CANADA'S DENTAL RESOURCES

VI

44. There are 6,000 dentists in Canada - one dentist for every 3,000 persons. Ever since the 1930's the ratio of dentists to population has been getting worse. There are no more dentists today than there were in 1915, in proportion to the population. To make today's shortage even worse, ten per cent of Canada's dentists are over 65 years of age.

VI(a)

Table VI-7

45. This country's supply of dentists is not nearly adequate, especially in comparison with the United States and many European countries. In the United States there is one dentist VI(b) for every 1,900 persons.

46. From province to province there is great variation in VI(c) ratios of dentists to population. Ontario and British Columbia, for instance, have one dentist to every 2,400 persons. Newfoundland has only one dentist to almost 11,000 persons. Distribution of dentists between urban and rural areas is VI(d) also out of balance. Rural areas have three times as many people for every dentist as have urban areas. Specialists, VI(h) too, are in short supply almost everywhere.

(b) FUTURE REQUIREMENTS IX

47. Unfortunately the ideal ratio of dentists to population to provide a goal for Canada's future dental resources is unknown. In 1980 Canada would need 9,000 dentists merely Table IX-2 to maintain its present inadequate ratio of 1/3,000. For the whole of Canada to reach Ontario's present ratio (1/2,400) by 1980, 11,000 dentists would be required. To attain by 1980, a ratio comparable to that of the United States in 1961 (1/1,900), there would have to be 14,000 dentists in Canada.

(c) ORGANIZATION OF PRIVATE DENTAL PRACTICE VII

48. The great majority of dental service performed in this country is rendered by dentists in private practice. Only about 200 dentists in Canada hold salaried positions.

49. Post-payment dental plans have been developed in most Canadian provinces but little experience has been gained in prepayment plans for dental care. Most patients pay directly for dental treatment on a fee for service basis.

50. Most dentists are in solo practice in one or two chair offices. The majority employ only one dental assistant but VII(b)
the growing awareness of the importance of auxiliaries in increasing productivity is expected to increase the utilization of auxiliary personnel.
51. The average dentist sees about 1,000 patients annually VII(d)
in 2,500 appointments, most of which are 30 or 45 minutes VII(c)
in duration. He works 41 hours a week for 46-47 weeks a year. Three-quarters of this time is spent at the chairside. Therefore, the practising dentist renders an average of 1500 - 1600 hours of treatment services annually.
52. A dentist's average gross income is \$20,000 a year. VII(a)
About one-half of this amount is spent on practice expenses. However, the dentist in private practice still has a considerably better income than his salaried confrere who averages \$7,500 per annum.
53. The amount of money a dentist earns varies according to the nature of his practice and its location. For example, the incomes of dentists in cities of 100,000 are double those Table VII-2
of dentists in towns of under 1,000. Age is also an important factor in determining a dentist's income. After the age of Table VII-3
50, the average dentist's income declines steadily.
- (d) DENTAL AUXILIARIES VIII
54. Dental assistants are the type of auxiliary personnel VIII(a)
most frequently employed by dentists. Generally, they have had no formal training. When only an assistant is employed in a dental office, she assumes the responsibilities of a secretary and performs a wide variety of duties ranging Table VIII-1
from receptionist and secretarial work to chairside assisting and minor housekeeping.

55. Dental hygienists are employed principally to give preventive and educational services. They are the only type of dental auxiliaries for whom formal training programs are now in existence. Following the two year course in dental hygiene, graduates may be licensed to practise under the supervision of a dentist. The hygienist cleans and scales teeth, applies topical fluoride solutions, takes and develops radiographs, renders first aid and acts as a dental health educator. In Manitoba and Alberta, legislation exists to extend these duties. There are fewer than 100 dental hygienists practising in Canada at the present time. VIII(c)
56. No formal training programs for dental technicians exist in Canada. Dental technicians, acting on the basis of instructions contained in prescriptions from dentists, perform extra-oral procedures associated with the fabrication of dental appliances. Unfortunately, much illegal practice exists. In several provinces persons who are not dentists have attempted to gain the right to deal directly with the public and in three they have at times possessed this right. There are several reasons for this development: the shortage of dentists, the increase in the number of older people most of whom require some type of prosthetic appliance, and perhaps the growing desire to buy everything at a discount - even health services.
57. The Canadian Dental Association supports the principle of the delegation of selected technical services to trained auxiliaries acting under the responsible supervision of the licensed dentist who must retain complete responsibility for the dental services rendered to his patients. This principle permits the extension of the availability of high quality dental care at reasonable cost and thus the public interest is served without derogating from the quality of dental care. VIII(d)
- The profession cannot support any measure which allegedly seeks to provide the public with services at lower costs

when there is no assurance of the competence of those intending to provide the service and where the public safety is at issue. Too often this question has been decided in the heat of political debate with little or no attempt to evaluate objectively the competence of the persons proposing to render the services or to study the economic and public safety aspects of the problem.

(e) PREVENTIVE SERVICES

(i) Fluoridation XI

58. Although the population drinking fluoridated water has quadrupled in the last five years, less than eight percent of Canada's population is drinking fluoridated water today. XI(a)

59. In its 1960 report the Ontario Government's Fluoridation Investigating Committee thoroughly investigated and attested that water fluoridation is effective, safe and inexpensive. Water fluoridation is the most effective, satisfactory and inexpensive method of reducing the incidence of dental caries.

60. In the event of the introduction of a dental service plan at public expense, the cost to taxpayers of each year's delay in water fluoridation will be many millions of dollars. The average reduction in dental caries of 60 per cent represents XI(d) a tremendous saving in treatment costs and could as well have a considerable effect on dental manpower requirements.

61. Legislation pertaining to fluoridation differs greatly in the ten provinces. In two provinces, plebiscites must be held before a municipality may fluoridate its water; in a third, a plebiscite is necessary if 10 per cent of the population petitions for one. In three provinces, municipal councils have the authority to introduce fluoridation. In another, it is impossible for a community to fluoridate its water. Three provinces have no legislation relating to fluoridation.

62. Fluoridation has become a political issue. Its opponents have resorted to emotional, irrational and scientifically unfounded arguments so that an objective evaluation of its benefits becomes almost impossible. In this clouded atmosphere of charges and countercharges, it is scarcely surprising that many voters hesitate to support it.
- (ii) Dental Health Education Programs XII
63. An intensive program of dental health education offers one of the main hopes for the eventual control of dental diseases. To an exceptional degree dental disease control is XII(a) a matter of personal responsibility. Such measures as restricting sweet foods between meals, properly cleaning teeth immediately after eating and maintaining a balanced diet will reduce dental caries significantly.
64. The sensible solution to Canada's dental health problem is to reduce the amount of disease which must be treated rather than try to provide endless treatment services. Intensive dental health education should precede treatment services in a dental health program. An educational program of this type includes periodic examinations of XII(b) preschool and elementary school children with notification of parents if treatment is required. The program does not include payment for restorative service. Instruction in proper brushing and dietary habits is given; statistical surveys of dental health are made so that treatment needs can be measured and the success of the program evaluated.
65. One of the most consistent results of dental health education programs has been the reduction of the backlog of untreated dental defects to less than 50 per cent - with XII(c) treatment being performed by local dentists at the expense of the parents. This indicates that much public neglect is the result of ignorance rather than apathy or economic hardship.

66. Public appreciation of a health service is vastly greater and parents are more willing to pay for the best treatment service when they understand the need for it. This is much more desirable than the passive acceptance of a marginally adequate service provided at public expense. Unfortunately, very few intensive dental health education programs have as yet been established in Canada.

(f) TREATMENT PROGRAMS

67. In Canada, dental treatment programs are operated by federal, provincial and local governments and by voluntary organizations such as the Canadian Red Cross. These programs vary from province to province but are for the most part directed toward the care of children. Many of these programs are seriously handicapped by the shortage of dentists, especially of public health dentists and dental hygienists. X
68. Several provinces give special consideration to the provision of dental care in rural and remote areas. Various methods are used such as motor and railway coach dental clinics and travelling dentists with transportable equipment. These programs do not even come close to meeting the great need. X(b)
69. Dental care programs for certain public assistance beneficiaries are operating in five provinces. These programs, covering 194,000 persons, are the largest group purchase plans for dental care in Canada. Dental treatment is provided by dentists in private practice on a fee for service basis. All or part of the dental bills are paid from public funds. Four of these programs are administered by the provincial dental organizations. XIII

70. It is extremely difficult to discover what portions of federal, provincial and municipal public health expenditures are directed to dental care. The percentage of national health grants spent on dental projects similarly can only be estimated. From what figures are available, however, it appears that not more than two per cent is expended on dental care. This is scarcely sufficient to spend on a disease which accounts for six to eight per cent of all personal expenditures on health care. XIV-1

(g) HOSPITAL DENTAL SERVICES

71. Hospitals are experiencing a growing acceptance as centres of health care and there is a developing intention that they play a major role in the total health program of the nation. Yet when this concept of total health care is considered we recognize that only a very few hospitals have formally organized dental services available for the patients whom they serve.

72. The most significant criterion for justifying expansion of a hospital to include a particular facet of health care is the fact that patients' treatment requirements can best be met in hospital. Such services as multiple extractions under general anaesthesia, the treatment of severe acute infections of the mouth and jaws, the management of complicated fractures of the jaws, treatment of subluxations of the temporo-mandibular joints, the management of physically and mentally handicapped patients and the treatment of patients with certain systemic diseases can be performed more effectively and more safely in hospitals.

73. Hospital dentistry, however, must encompass a broader spectrum of services than those which are oral surgical in nature. The findings of dental examinations of patients admitted to hospitals may suggest or even

dictate modifications in medical treatment. In hospitals where habilitation or rehabilitation services are provided for the patient with handicapping conditions of the jaws and face, the team concept of physician, dentist, surgeon, oral surgeon, orthodontist, psychiatrist, speech therapist, occupational therapist, physiotherapist, and social worker produces results which are superior to those obtained when treatment services have not been coordinated. In the United Kingdom, particularly, departments of dentistry have always been indigenous to the hospital environment and thus the development of the team approach to problems of overlapping interest and concern has matured to a degree not yet generally achieved in Canada. Thus, in this country, there tends to be a lack of appreciation of the values inherent in such association. As a consequence, there is too small a number of dentists with hospital practice experience and hospital medical staffs are generally unaware of the many and varied situations in which their dental colleagues could be of assistance in the ultimate best interests of the patient.

74. Hospital practice, under existing provincial legislation, is a privilege - not a right. Thus the selection by hospital boards of trustees of both physicians and dentists for hospital staff appointment should be exercised with care. Once the dentist is appointed to the staff of a hospital, however, he should be able to fulfill his professional role and assume the maximum possible oversight of and responsibility for his own services unencumbered by archaic and unreasonably restrictive regulatory provisions.

75. Generally speaking, hospital by-laws relating to dental services do not create that professional environment which accords to a member of a dental staff that confidence which, of necessity, must repose in a professional person. Dentistry in Canada and on this continent has always been an

autonomous profession and the standards of dentistry in the United States and Canada are not exceeded anywhere in the world. The profession in all provinces enjoys the obligations and rights of responsible self-government and responsible self-determination within the authority granted by the respective provincial dentistry acts. One of these provincial statutes has existed since 1868.

76. Dentistry possesses its own teaching faculties within the jurisdiction of recognized universities and its graduates are accorded a university doctorate recognized by law. The Royal Canadian Dental Corps exists autonomously to provide dental care on a tri-service basis. There is no other health profession, apart from the medical profession, for which similar observations can be made.

77. The Association quite agrees and, in fact, would emphatically urge, that a patient admitted to hospital for dental service must have the benefit of a physical examination which can only be given by a member of the medical staff. However, when a carefully selected and appointed member of the dental staff of a hospital wishes to admit a patient for dental services he should be able to admit that patient on the basis of a priority equal to any other generally elective treatment requirement. The dental staff member should be accorded that confidence which recognizes that he, as a judicious and competent professional person, will admit a patient only when, in his professional judgment, such admission is in the patient's best interest. It then should only be necessary for him to have arrangements made with a member of the medical staff to complete the required physical examination. General regulations in all provinces, with the possible exception of Manitoba, do not provide for such a reasonable and realistic procedure.

78. A dental service of a hospital should be operated on the basis of four main functions:

(i) Administrative: to conduct the affairs of the dental service in accordance with the established administrative procedures of the hospital.

(ii) Advisory: to act, through customary channels, in an advisory capacity in all problems related to the dental health of the patient.

(iii) Clinical: to render professional services to patients in accordance with the concepts of modern scientific dentistry and to evaluate these services periodically; to consult on dental matters with the other services.

(iv) Educational: to provide an educational program for undergraduate dental students, dental interns, dental hygienists, and dental assistants; to provide training for junior staff members; to engage, when facilities permit, in the teaching of graduate and post-graduate students who are preparing themselves for the practice of one of the specialties of dentistry.

79. The Association, having established basic standards for hospital dental services, will upon application of a hospital, render approval of its dental services if those services meet the basic standards. Fourteen Canadian hospitals possess dental services approved by the Association:

Vancouver General Hospital
Shaughnessy Hospital - Vancouver
Deer Lodge Hospital - Winnipeg
Hamilton General Hospital
Toronto General Hospital
Doctors' Hospital - Toronto
New Mt. Sinai Hospital - Toronto
St. Michael's Hospital - Toronto

Hospital for Sick Children - Toronto

Sunnybrook Hospital - Toronto

L'hôpital du Sacre Coeur - Montreal

Montreal Children's Hospital

Montreal General Hospital

Royal Victoria Hospital - Montreal

80. The Hospital Services Committee of the Canadian Dental Association has worked assiduously for many years to develop standards and criteria which when applied to dental services in hospitals would foster a high quality of professional care. The Association maintains such approved statements, policies, model regulations, and other material pertinent to hospital dental services and the following are available for anyone to whom they may be helpful:

- Basic standards of Hospital Dental Services
- Policies and Regulations Governing Hospital Dental Services
- Model By-laws for Public Hospitals Dental Services
- Rules and Regulations Controlling Dental Staff Privileges in Hospitals
- Requirements for the Approval of Dental Internships
- Canadian Hospitals with Approved Dental Services
- A suggested list of equipment and instruments for a hospital dental service
- Lectures in dentistry for nurses in training

DENTAL EDUCATION

Appendix

81. If Canada is to increase substantially the volume of dental services available to the public, plans must be made immediately to effect a drastic increase in the number of dental personnel. To have more dentists there must be more students and more teachers and more physical facilities to train them. The need for more students will heighten the importance of recruitment programs and incentives to enter dentistry. In addition, educational programs must be established and expanded so that dental auxiliaries can be trained thoroughly to render a broader scope of services than is possible now.

(a) PRESENT FACILITIES

XX

82. Canada has only six dental schools. They are faculties of these universities:

Dalhousie University
University of Montreal
McGill University
University of Toronto
University of Manitoba
University of Alberta

Together these schools can accommodate 338 students in each of the four dental years.

83. Following the establishment of the faculty of dentistry at the University of Alberta in 1925 there was no expansion of facilities for dental education in Canada for 25 years. During the 25 years, Canada's population increased almost 50 per cent. Since 1950, the total capacity per class of the Canadian schools has risen from 218 to 338. Even allowing for this increase and for plans for expansion, Canada will have only half as many graduates in relation to her popula-

XX(a)

XX(b)

tion as such dentally-conscious nations as Norway and Sweden.

(b) FUTURE NEEDS

84. If all dental schools operated at top capacity between now and 1980, Canada's dentist/population ratio would remain close to its 1961 figure of 1/3,000. With current scientific knowledge, techniques and methods of practice, this ratio will not permit a significant increase in the volume of dental services. If an attempt were made to equal the present American dentist/population ratio by 1980, Canada would have to more than double the current capacity of her dental schools by 1968. XX(f) XX(g)

85. It is obvious that immediate steps must be taken to increase Canada's facilities for educating dentists. This increase cannot be achieved only by expanding the present dental schools. New schools in new locations must be established. British Columbia and Saskatchewan have long awaited dental schools. Additional schools are needed in Ontario and Quebec. The establishment of these new facilities would provide centres for research and postgraduate studies in these regions. It would also promote a more even distribution of practising dentists in Canada because dentists tend to locate near university centres where they can be associated as teachers and undertake refresher courses and where public appreciation of dentistry is stimulated by university programs.

(c) DENTAL STUDENTS

86. There were six hundred applicants for the 338 vacancies in the 1961-62 freshman classes. There were 320 students finally enrolled; this was one-fifth more than the 1960-61 XVI(a) XVI(b)

freshman enrolment.

87. The total enrolment of all six schools in 1961-62 is 1,052 students. Ten per cent of these students are residents of other countries. Table XVI-2
Table XVI-8
88. The minimum requirement for admission to a dental school is generally one predental year of arts and science after senior matriculation or its equivalent. Following successful completion of the four dental years, the graduate dentist applies for a provincial licence to practise. XVII(b)
89. The licensing boards of all provinces will accept for examination graduates from Canadian and American schools approved by the Canadian Dental Association. Quebec accepts only the graduates of Canadian schools. At the present time, holders of the National Dental Examining Board certificate are accepted without further examination by nine provinces. Candidates for the national examinations must be graduates of approved Canadian and American schools. XXI(a)
XXI(b)
90. Six provinces will accept for examination without further study graduates holding the Bachelor of Dental Surgery degree from universities in the United Kingdom, Australia and New Zealand. Graduates of other foreign schools must obtain Canadian degrees before they can sit for licensure examinations. They generally have to study two or three years at a Canadian dental school. XXI(a)
XVII(c)
- (d) POST-GRADUATE EDUCATION XXII
91. Canadian dental schools offer post-graduate courses for training specialists in oral surgery, orthodontics, paedodontics, periodontics, dental public health and prosthodontics.
92. Full-time courses leading to specialization and research careers are limited because of the shortage of

personnel trained to give advanced instruction and also because of inadequate finances. It is vital that more financial support be received so that teachers urgently required for the expanding school enrolment may be obtained.

93. Continuing education for dentists is achieved to a limited degree through short refresher courses at the university and through clinics, seminars, study clubs, scientific sessions at conventions, regular meetings of dental societies and scientific papers published in dental periodicals.

(e) RECRUITMENT

94. Applications to dental schools in 1961 were almost double those in 1960. The increase in applications from Canadians was particularly marked. This reflects in part heightened activity on the part of the profession in its national, provincial and local recruitment programs. XVI(a) XIX(a)
95. Dentistry is one of the costliest university courses - second probably only to medicine. The median cost of university expenses and room and board for four years of dental school is \$6,400. When the cost of predental education is added the total rises to \$7,700. At all universities, scholarships, bursaries and loans are available to dental as to other students. In addition, three provinces have special bursary programs to encourage dental graduates to enter public health work or to establish practices in rural areas. In these programs, as in the Royal Canadian Dental Corps subsidization plan, the costs of dental education are subsidized in exchange for a number of years' service under stipulated conditions. The limited success of the provincial programs has not indicated that they are the solution to the problem of improving the urban-rural distribution of dentists. XVIII XIX(d)

96. Students from smaller communities have a greater XIX(c)
tendency to settle in rural areas than do students from larger
centres. However, fewer students come from smaller
towns and villages than would be expected on the basis of
population distribution. It appears that one answer to the
current dentist distribution problem is to conduct concentrated
recruitment campaigns and to devise special incentives
aimed at attracting more students from less-populated areas.
97. As women constitute the larger untapped reserve of XIX(b)
potential dental students, it is logical that more emphasis be
given to the recruitment of women dentists. Less than four
per cent of Canada's current dental students and two per cent
of her dentists are women. These statistics stand in sharp
contrast to those of many European countries where women
often form a substantial portion of the dentist: population.
Even of the ten women dentists who graduated in Canada in Table XVI-5
1961, seven were foreign born.
- (f) AUXILIARY PERSONNEL XXIII
98. The virtual impossibility of achieving a major impro-
vement in Canada's dentist/population ratio emphasizes the
need to increase dental productivity through other methods.
99. The profession has for some time now advocated an
expansion of the scope of duties which dental auxiliaries may
legally perform. The Canadian Dental Association's policy
statement entitled Projection of Dental Services in Canada
states:
- "Properly qualified and recognized dental
 auxiliaries could be trained to render a broader
 scope of service than that presently recommended.
- The training of these new auxiliaries must be at
 the direction of the dental profession and should

be given at a recognized dental school

The services that these auxiliaries are qualified to render must be included in the prescribed teaching program, and must be under the direct supervision of a qualified dentist.

These services must not include those operations requiring the scientific knowledge of the fully-qualified dentist (e.g. case assessment, treatment planning, cutting or severing of hard and soft tissues, the administration of drugs, the making of prescriptions) but should include many of the technical operations and technical parts of operations for which purpose auxiliary personnel has been adequately trained.

The licensed dentist must retain full responsibility for the patient's welfare."

100. The New Zealand dental nurse program has demon- XXV
strated that, in two years, girls can be trained to perform many technical procedures with a high degree of competence. (1) However, the dental nurse's responsibility in diagnosis and treatment planning far exceeds her training. (2) Auxiliaries cannot be trained in two years to recognize the problems connected with the growth and development of the jaws and face of the child.

101. The detection of nascent dental problems in the child, which is the crux of prevention, demands the knowledge of
- (1) Ellis R.G., Report of Dental Health Services in New Zealand and Australia, "As an operative technician, the school dental nurse is well trained and provides an excellent technical service in her limited field," p. 2.
- (2) Ibid., "For the limited education and experience provided in training in diagnosis, (the school dental nurses) are given responsibility beyond comprehension in examination and treatment planning."

the fully qualified dentist. Simply to establish a reparative treatment program for recurring dental disease is to perpetuate the disease. If the aim be - and it should be - to improve the dental health of the nation, then the child's welfare must be the responsibility of the fully trained diagnostician, namely the dentist.

102. While it is evident that children in many parts of Canada are not receiving even the degree of care that the New Zealand school nurse could render, the long range objective of complete dental health must not be sacrificed by the institution of a temporary expedient.
103. Auxiliaries should be trained to render a far broader scope of duties than currently feasible, but they should perform these duties under the direct supervision of a dentist, the only person who can assume responsibility for the patient's complete dental care. In this way, the present unsurpassed quality of dental services in Canada will be maintained while the quantity of such services is increased considerably. The end result will be far more effective than a caries care program operated by a completely separate branch of dental personnel.
104. When the New Zealand school dental service began in 1921, dentistry for children was little recognized by the dental profession. With little but treatment measures to guide it, the service began as a reparative program with dental health education added at a later stage. Today, with increased knowledge in this field, the approach to the problem of good dental health for children would be the exact reverse of the original New Zealand plan. An educational program would have precedence over a treatment program.

105. Because education is so important in the prevention of dental disease, the profession believes that rather than train a new type of auxiliary to render more technical services, the present program for training dental hygienists should be extended to include these additional duties. The curriculum of the dental hygiene course has always stressed the importance of educational and preventive measures and it therefore forms the most efficacious foundation for the extension of auxiliary services in modern dentistry.
106. At present the dental schools of Toronto, Dalhousie and Alberta universities are giving two-year courses in dental hygiene. Programs at the latter two schools commenced only in September 1961. When total capacities at the three schools are reached, 92 hygienists can be graduated annually. Courses should be established at the other dental schools as soon as possible. XXIII(a)
107. No formal training program for dental assistants and technicians exists in Canada. On the job training sometimes supplemented with evening courses is the only means by which some competence can be acquired. These methods have not and will never provide a satisfactory solution to the problem of adequately training auxiliary personnel. XXIII(b) XXIII(c)
108. Personnel such as nurses and radiological and laboratory technicians are trained in hospitals. Unfortunately, dental services in hospitals are so limited that there is no possibility of developing training programs for dental auxiliaries within these institutions. The only location in dentistry comparable to the public general hospital is the patients' clinics of the faculties of dentistry where a relatively large volume of patients receives the widest variety of professional attentions.

109. To work well as a team in actual practice, all members of the dental health team should be trained in the same environment. The facilities and equipment and the atmosphere exist only in dental schools. In hospitals, medical students and interns acquire invaluable experience in working with the medical team, including all allied personnel. Similarly, dental students could benefit from the team approach in training. The relatively small number of auxiliary workers employed by dental schools simply can not provide the benefits that would accrue from all members of the dental health team being trained together.

DENTAL RESEARCH

Appendix

110. Research ranks high among the dental profession's attempts to improve oral health. Every single method now available for the control and prevention of dental disease has been a product of research; and every preventive method yet to be discovered and employed will similarly result from research. In addition, improvements in methods and materials for the treatment of dental disease have been and will continue to be dependent on research.
111. Research activities must continue to grow and develop if the profession is to continue to provide a better treatment service and eventually to control and prevent dental disease. Throughout the history of dentistry, every major step that has been taken to elevate the broad practice of dentistry has resulted from the acquisition of new knowledge. Future steps toward improvement will undoubtedly be taken on the same basis; and the new knowledge will accumulate only through research.
112. In the meantime, it is important to teaching and to public health programs to have research underway. It excites and stimulates these activities. Without research, undergraduate teaching becomes dull and pedantic and graduate teaching becomes impossible; without the opportunity to add to knowledge, the task of the dental public health worker becomes unexciting and repetitious.
113. A vigorous dental research program is relatively young in Canada, but in spite of its youth its impact on dentistry has already been felt. If the oral health status of Canadians is to continue to improve, then this research program must continue to grow; for research is the answer

to the long term problems of dental disease.

114. Dental research in Canada has grown, particularly in the past 15 years, to become a highly important and sizeable part of the activities of the dental profession, involving a current annual expenditure of about \$250,000 for its support. Encouragement and financial support by the profession at large have been major factors in this development. Research programs have now been established in every dental school, with resulting improvement in the teaching programs. Since 1947, well over 100 scientific papers have been published in the broad field of dental research. They have added significantly to knowledge, not only in the field of dentistry and dental disease, but in the field of general biology as well.

115. This program of dental research must be continued and increased if the profession is ever to reach its lofty but feasible goal - total prevention of dental disease.

(a) DEVELOPMENT OF DENTAL RESEARCH IN CANADA XXIV(a)

116. The dental profession, realizing the need for research in Canada, took the first step toward the establishment of a program by setting up the Canadian Dental Research Foundation in 1920. Money for the foundation was donated by dentists and dental organizations across the country. The Council on Research of the Canadian Dental Association is the board of directors of the Foundation.

117. To assist dentists in obtaining proper training for research careers the Canadian Dental Association in 1944 established annual studentships (fellowships). Studentships have helped to support 24 dentists for graduate study, of whom 18 either have served or are now serving on staffs of Canadian dental schools.

118. In 1945, the National Research Council of Canada established the Associate Committee on Dental Research to advise the Council on research grants for dentistry. This source of research support is now the largest in the country. National Research Council funds not only provide fellowships, but also support research projects through grants-in-aid. Recently, a type of award has been established which will furnish support for career research investigators in dental schools.

119. Since the mid-1940's the Canadian dental research program has grown rapidly, and it is still growing. Financial support for this growth has come also from the extramural program of the Department of National Health and Welfare, from the National Institutes of Health in the United States and from voluntary contributions of dentists. In 1961, well over \$200,000 was spent for fellowships and grants-in-aid of dental research, to support about ten dentists now acquiring research training and to support current research activities by about 30 research workers. Figure XXIV-1

(b) DENTAL RESEARCH CONTRIBUTIONS XXIV(b)

120. The financial support of the research programs in dentistry has had two basic purposes: (a) to recruit potential research personnel and to assist them in acquiring the necessary training, and (b) to acquire new knowledge. Efforts to recruit individuals for dental research have recently been increased. In 1955, the Canadian Dental Association began a program of undergraduate student support to allow highly qualified students an opportunity to work in research laboratories during the summer months. The undergraduate program was augmented in 1958 by grants from the National Research Council.

121. Both the undergraduate and graduate student support programs have had a significant and stimulatory influence on dental education in this country. The impact of research conducted by the staff on curriculum is perhaps even more significant.

122. Dental research has paid dividends also in terms of the acquisition of new knowledge. Project support by dental granting bodies has not been limited to projects obviously related to teeth themselves: it has been used to further work of much broader biological significance.

(c) FUTURE OF DENTAL RESEARCH

123. The ultimate solution to the problems of providing dental service to the nation is to eliminate the need for that service by preventing dental disease. Significant advances have already been made toward the prevention of dental decay, and more will come as research reveals new insight into the nature and complexity of the disease. While prevention in other oral diseases is not so advanced as in tooth decay, nevertheless the same prediction holds true; and the speed at which the prediction becomes a reality is directly related to the amount of effort put into a research program.

124. Canadians now invest considerably less than two cents XXIV(c) per capita per year to support dental research, and at the same time they spend about \$5 per capita on treatment - most of which goes to repair damage already done. For every \$400 spent on treatment, only \$1 goes for research. For all other personal health care, the comparable ratio is 140/1. The dental treatment bill is about 1/15 that for all personal health care, yet support for dental research is only 1/40 that for medical research. Obviously there is a serious imbalance between research and treatment costs

in dentistry. If the latter are to be reduced appreciably - and surely this is significant to future health service plans - then more prevention is necessary; and more research is the only thing that can bring this about.

125. Research in malocclusion and periodontal disease is as vital as research in dental caries. These problems cannot be solved only by training more specialists to provide treatment services.

126. The most serious immediate handicap to further dental research expansion is lack of qualified personnel. More workers must be attracted into dental research, and these must be recruited largely from the ranks of the profession. While it is true that non-dental research workers have made highly important contributions to dental research, most of it has been done by dentists who have undergone a period of training for a research career. This pattern will surely continue. At the present time, about ten dental graduates are undergoing research training, and most of them will join the staffs of dental schools. There are only six dental schools in Canada, and, even with the help of National Research Council Associateships to pay the salaries of career investigators, there is a foreseeable limit to the number of workers that the schools can employ. To help increase opportunities, a Chair in Dental Research should be established at each school, and later, as more dental research workers become available, a National Institute for Dental Research should be established.

127. Little dental research in Canada is related to improving materials and methods for dental treatment. The profession does benefit, however, from the efforts of the dental supply industry. Industrial research has made available materials, instruments and equipment of a very

CONCLUSIONS AND RECOMMENDATIONS

(a) CONCLUSIONS

130. There are many who oversimplify the dental health problem by assuming that an economic barrier forms the only obstacle to universal dental health. Unfortunately, the problem is considerably more complicated. The economic factor cannot be ignored, but it is not the only or even the most important cause of poor dental health.

(i) Reduce the Need and Raise the Demand for Dental Care

131. The dental health problem will never be solved unless the prevalence and incidence of dental disease are decreased. This can be achieved only by more research and by more preventive measures. An obvious prerequisite is the fluoridation of all public water supplies. Intensive educational programs which inform individuals of the importance of oral hygiene, good diet and regular dental care can simultaneously decrease dental need and increase dental demand. Unless such preventive services as these are developed and organized, Canada's dental resources and finances will be consumed in the attempt to restore dental health lost because preventive measures were not carried out.

(ii) Increase the Supply of Dental Services

132. To accomplish this objective, Canada needs more dental schools and more dental students to fill them. Economic barriers to dental education must be removed. In particular, more students must be recruited from rural areas and dental practice in rural areas must be made more attractive. Auxiliary services must be extended and the number of auxiliaries increased. The quality of auxiliary services can be improved by establishing programs

of formal education for assistants and technicians. Hospitals should establish dental departments and permit dentists to admit patients to hospital.

(iii) Dental Insurance Plan

133. The Canadian Dental Association cannot recommend a national dental insurance plan at this time. Emphasis must first be placed on more research, more prevention and more manpower. (1)

134. If this Commission should recommend the establishment of a dental insurance plan, however, the Canadian Dental Association would make the following suggestions:

- a- The dental treatment program should be preceded by and accompanied with intensive dental health education programs.
- b- The age groups to be covered by the treatment program should be determined by initial and annual assessments of the need of the population and the personnel and funds available. If possible, the program should begin by including all children from three to six years of age and should be incremental, extending annually to children one year older. In this way, all children up to age 16 would be covered when the program had been in operation for ten years.

(1) The importance of education, prevention, and research in the development of good dental health cannot be over emphasized. The failure of programs which stress treatment services alone was markedly apparent from the dental health status of New Zealand recruits during the Second World War. Dental examinations of military personnel revealed that although the school dental service had been in operation since 1921, 58 per cent of the recruits either needed or were wearing full or partial dentures; 25 per cent were completely edentulous; 25 per cent wore either full upper or full lower dentures; 8 per cent wore partial dentures. The benefits of the service had been lost by the time the young people reached military age.

Table 1. CHILDREN ELIGIBLE FOR DENTAL TREATMENT BY YEARS OF OPERATION OF PROGRAM

Year of Program's Operation	Age of Child														
	3	4	5	6	7	8	9	10	11	12	13	14	15		
1st		x	x	x	x										
2nd		x	x	x	x	x									
3rd		x	x	x	x	x	x								
4th		x	x	x	x	x	x	x							
5th		x	x	x	x	x	x	x	x						
6th		x	x	x	x	x	x	x	x	x					
7th		x	x	x	x	x	x	x	x	x	x				
8th		x	x	x	x	x	x	x	x	x	x	x			
9th		x	x	x	x	x	x	x	x	x	x	x	x		
10th		x	x	x	x	x	x	x	x	x	x	x	x	x	

- c- Treatment should be provided by dentists in private practice.
- d- Payment for services should be made on a fee-for-service basis according to a fee schedule acceptable to the profession. The method of payment should recognize the training, experience and productivity of the participating dentists.
- e- Dentists should be free to participate or not participate in the plan according to their own wishes.
- f- The right of patients to select their dentists and conversely the right of dentists to select their patients should be protected.
- g- The plan should be administered by provincial, non-profit, profession-sponsored dental service corporations which have representative lay as well as professional members on their boards of directors.
- h- The discipline of dentists should be the responsibility of professional disciplinary boards.
- i- No prior authorization should be required for insured services.
- j- Specialist services should be insured only if the patients have been referred to the specialist by a general practitioner.

k- It would not be possible to include all the services which dentists are capable of providing. For example, between 50 and 75 per cent of the population could benefit from some orthodontic treatment. Orthodontic treatment often takes from six months to three years to complete. The scarcity and geographic distribution of orthodontists would necessitate limitation of insured services to the most handicapping cases.

Where services must be curtailed, it is necessary to allocate priority ratings to the various services in order to forestall excessive demands for terminal treatment (e.g. bridges, dentures, etc.) and in order to extend to progressively larger numbers of patients those services which are essential (e.g. emergency care) and which contribute most effectively to the integrity of the teeth and their supporting structures (e.g. preventive and maintenance care). The following order of priority is recommended for guidance:

- emergency care for the alleviation of pain and treatment of acute infections.
- periodic clinical and radiographic examinations and prophylaxes; topical application of anti-cariogenic agents; assessment of dietary and oral hygiene practices and nutritional status; supplementary tests (e.g. caries activity tests).
- care on a planned and continuing basis to keep the mouth in the best possible condition; restoration of carious lesions; elimination of early periodontal conditions; prevention and interception of malocclusion.

- provision of terminal treatment, such as prosthetic appliances, and correction of established malocclusions.

l- In financing a dental treatment program, consideration should be given to the possibility of experience-rating municipalities. For example, it is hardly fair that a community which has had the wisdom to fluoridate its water and has thus decreased its caries attack rate by 60 per cent should be taxed for dental insurance at the same rate as a non-fluoridated area. The possibility of placing deterrent taxes on non-essential foods and beverages which definitely increase dental decay should also be investigated.

m- Direct annual surveys of the dental health of the people should be conducted to determine the direction and development of the program. The success of a dental treatment program cannot be established by the tabulation of the number of operations performed out of an unknown backlog of treatment services.

135. The goal of the dental profession is to improve the level of dental health until ultimately all Canadians enjoy good dental health. The long held view of the Canadian Dental Association on the method of achieving this ideal was reaffirmed at the Association's annual meeting in 1960.

"In Canada, with the low dentist to population ratio and the high percentage of people suffering from dental disease, it is impossible at present to offer comprehensive dental care to all segments of the population. To initiate a program of restorative services for people of all ages would not result in good dental health for the present population and would actually prevent the realization of this objective for the future generation.

Therefore, the first aim of any dental services plan introduced in this country must be to preserve the state of dental health with which the normal child is born. Through a positive program of preventive care for the youngest age groups combined with sound public health measures and intensive dental education for the child and his parents, a generation of Canadians with healthy mouths and the knowledge necessary to maintain that health becomes at last an attainable goal.

The extension of coverage to older persons can be made only when it is evident that this can be done at no sacrifice to the care required by the youngest members of the population".(1)

136. The Canadian Dental Association stands resolutely opposed to the introduction of a comprehensive treatment program for people of all ages.

(b) RECOMMENDATIONS

(i) Fluoridation

137. The Ontario fluoridation investigating committee concluded in its 1961 report that "the fluoridation of municipal water supplies by the authority of appropriate legislation would not be a denial of any fundamental or basic civil right or liberty which the Legislature of Ontario should protect and preserve".(2) The committee stated
- "In the past few years, some municipal councils have taken the opinions of their voters on this

(1) Canadian Dental Association, Transactions 1960, p.19.

(2) Report of the Committee Appointed to Inquire into and Report upon the Fluoridation of Municipal Water Supplies, 1961, p.121.

issue by holding a referendum..... We are strongly of the opinion that this issue should not be decided at the local level by referendum. Many aspects of this problem are highly technical and bristle with apparent scientific complexities. It bears no resemblance to such municipal issues as Sunday sports and entertainment..... This committee has taken almost two years in the investigation of this problem and during that time has had the assistance and advice of scientifically qualified persons..... If the issue in any municipality were to be decided by referendum, then most of the voters would have to make their individual decisions perhaps upon inadequate and misleading information."(1)

138. It is recommended that provincial legislatures make fluoridation of communal water supplies mandatory through the enactment of legislation similar to that which exists for the control of water quality.

139. It is further recommended that when a province makes fluoridation compulsory, it should qualify for funds from the federal government to subsidize the costs of fluoridation. The federal government could pay 50 per cent of these costs with 25 per cent coming from each of the provincial and municipal governments.

140. It is recommended that the Department of National Defence institute communal water fluoridation programs in areas under the department's jurisdiction in which military personnel and their dependants reside.

141. It is estimated that the total annual cost of fluoridation in Canada would be approximately \$1,500,000.

142. Where fluoridation exists, the average rate of new dental caries can be reduced by 60 per cent. This would result in a tremendous saving in treatment costs and could as well have a considerable effect on the dental manpower needs for caries treatment.

(1) Ibid., p.118

(iii) Dental Public Health Education Programs

143. Dental disease control is to an exceptional degree a matter of personal responsibility. Dental health education is necessary to make people acutely aware of this. Intensive programs of dental health education are in varying stages of development across Canada. Such programs should be organized and actively promoted in all health regions or units. They should be under the direction of dentists qualified in public health.

144. The programs should be directed to preschool and young school children. The children should be examined regularly and referred to private dentists by notifying parents if treatment is required. Children should be taught correct methods of oral hygiene and good food habits. Parents should be educated in the child's dental health needs at pre-natal and child health clinics.

145. These programs should be financed by grants from the federal, provincial and local governments.

146. Such programs would greatly increase the appreciation of dental health and would greatly reduce, at the patient's own expense, the backlog of unfilled treatment. People would be encouraged to seek early care before defects become advanced. Intensive dental health education offers one of the major hopes for the eventual control of dental disease.

(iii) Dental Research

147. For every \$400 spent on dental treatment only \$1 is spent on research. The amount of money available for research must be increased substantially if the dental health problem is to be solved.

148. The federal granting bodies which are presently supporting dental research should be cognizant of the needs for training research personnel, for appointing more research personnel and for providing them with sufficient money for their projects.
149. The amount of money available for research should be increased commensurate with the increased demands of research projects. The amount necessary will eventually reach approximately \$3,000,000 annually.
150. Good liaison should be maintained between the granting agencies and the Canadian Dental Association.
151. Intensified dental research can make a real impact on methods of education, practice and prevention.
- (iv) Treatment Programs for Public Assistance
- Beneficiaries
152. Recipients of public assistance generally cannot afford the dental care they require. Five provinces already have programs which provide dental services for some or all people in this category.
153. It is recommended that the provinces institute dental treatment benefits for all beneficiaries of presently operating public assistance programs.
154. It is further recommended that these programs be administered by the dental profession. This pattern has proved successful in the provinces of Alberta, Ontario, British Columbia and Manitoba.
155. The estimated total cost of these programs would be about \$6,000,000 per year.
156. The provincial government should pay a per capita grant on the basis of negotiation with the provincial dental organization administering the plan.
157. These programs would enable this segment of the population to receive dental care without economic restrictions.

(v) Dental Health Study

158. Data on the dental health and treatment level of Canadians are fragmentary. This information is vital for planning future dental health programs. Careful analysis of the reasons for the low demand for dental care is also necessary to determine what emphasis should be placed on the various aspects of dental programs. If there is interest in determining what treatment levels could be met by specified personnel and financial resources, a special study is required.

159. The Royal Commission on Health Services, in cooperation with the dental profession, is urged to undertake a definitive study of dental health needs and factors influencing demand for dental care. This study would provide the direction necessary for the development of future dental programs. The Canadian Dental Association offers to assist in any way it can in the planning of such a study.

(vi) National Dental Health Index

160. Under the charter of the World Health Organization, member nations are committed to undertake the gathering and reporting of dental statistics as described in the technical bulletin of that organization.

161. In recognition of WHO recommendations, the federal government should establish machinery to maintain through annual compilation of dental health data the dental health index initiated by the Canadian Dental Association.

(vii) Dental Schools

162. Unless the shortage of dental personnel is to become increasingly acute, immediate plans must be made to train more dentists and dental hygienists. To do this more dental schools must be built.

163. Dental schools should be planned immediately at the University of British Columbia, the University of Saskatchewan and Laval University. Another dental school should be opened in Ontario. The Faculty of Dentistry at Dalhousie University should be expanded. Training facilities for dental hygienists should be established at the universities of Manitoba and Montreal and at McGill University as well as at the four new dental schools recommended.

164. The cost of building and expanding these schools might be approximately \$20,000,000.

165. Because this is a matter vital to national health, the federal government should encourage the expansion of existing dental schools and the establishment of new dental schools with facilities for training dental hygienists by offering to participate in the capital costs and equipment of these schools.

166. Only in this way can sufficient numbers of people be trained to provide dental services for future generations of Canadians.

(viii) More Dental Teachers

167. The current shortage of dental teachers will become much more serious as the necessary expansion of dental schools occurs. The need is particularly acute for more full-time career teachers.

168. It is recommended that federal grants to universities be increased in order to permit dental faculties to improve the ratio of full-time staff to part-time staff.

169. It is recommended that more funds be made available to support dentists while undertaking post-graduate education in preparation for careers as teachers.

(ix) Better Salaries for Public Health Dentists

170. In order to attract and hold competent individuals, health agencies must compete with the financial returns

available in the private practice of dentistry.

171. The average net income of dentists in general practice exceeds \$10,000 per year. Salaried dentists, on the other hand, report an average annual income of only \$7,500.

172. In order to give impetus to the essential improvement and expansion of dental public health programs, it is recommended that health agencies adopt dental salary schedules comparable to incomes in private practice.

(x) More Specialists

173. There is a grave shortage of specialists in dentistry.

174. Dental schools should make provision for training more specialists than they can accommodate now. Those schools not providing graduate programs should be encouraged to do so. More government funds must be made available to the schools for this purpose.

(xi) Recruitment

175. The National Recruitment Committee of the Canadian Dental Association has drafted a workable program for bringing the virtues of careers in dentistry to the attention of more people. Provincial and local recruitment committees are being established in dental organizations throughout the country. Increased numbers of applicants to dental schools in 1961 indicate that recruitment efforts are beginning to produce results. But thorough investigations of the problem and methods of solution are vital if sufficient numbers of high calibre new dental students are to be found.

176. It is recommended that this Royal Commission on Health Services undertake a detailed, thorough study of recruitment to the health professions.

177. Such a study, conducted by the commission's qualified research staff, might, for instance, show the reasons why students of similar academic interests and achievement do and do not choose particular careers in the

health professions and what incentives influence the selection of their careers.

(xii) University Fees

178. The most highly qualified students must be encouraged to enter university. The only criteria for university entrance should be ability and academic achievement. University education is now heavily subsidized, but students still must pay fees which for some may prove prohibitive. There seems to be no logical reason why education should be free for high school students but not for university students.
179. University fees should be continually lowered until at the earliest opportunity they may be removed. As a first step, fees for courses like dentistry which are very expensive and which are educating students for a profession experiencing a critical personnel shortage should be reduced so that they are comparable with fees for other university courses.
180. With the removal of this economic barrier to higher education, more students would be encouraged to apply for university admission.
181. For dentistry alone, the removal of fees at the present capacity of the dental schools would cost \$700,000 annually.
182. The federal government should increase its annual per capita grants sufficiently to permit the universities to reduce fees.
183. The result of this measure would be an increase in both the quantity and quality of university students.

(xiii) Dental Student Loan Fund

184. Even if all university fees were removed, many young people would find it difficult to enter dentistry because they could not afford their living expenses while at university. The economic burden is particularly great

for students from out of town and for those living away from home. Also it is often financially difficult for dentists to undertake graduate or post-graduate courses.

185. It is recommended that a revolving loan fund be established for undergraduate and post-graduate dental students.
186. Students could borrow up to \$1,000 each year. The loan would be repaid after university. For example, if a student borrowed \$500 in each dental year, he would repay the \$2,000 at \$500 a year for four years following graduation. During this period the loan would be interest free. Students would be recommended for the loans by their dental schools. Selection would be made by a national committee composed of representatives of the dental schools, the profession and the government. Preference would be given to (a) students from rural areas; (b) students living away from home; (c) graduate and post-graduate students.
187. The fund should begin with \$100,000. Later it may be necessary to raise it to \$500,000. The Canadian Dental Association will contribute one half of the initial amount and requests that the federal government provide the other \$50,000.
188. It is expected that such a fund would increase the number of dental students, particularly those from rural areas.
- (xiv) Expenses of Post-graduate Education
189. In the interest of improving dental services for the people of Canada, dentists should be given every possible inducement to pursue professional education beyond the attainment of a university degree and a licence to practise.
190. Attaining additional qualifications means not just the expense of the education itself but also an actual loss of income while away from practice, with overhead expenses

continuing regardless of the dentist's absence. These expenses understandably deter many dentists from attending short refresher courses and other types of post-graduate education.

191. It is recommended that federal and provincial income tax regulations be amended to permit tax relief for dentists who attend training courses under auspices of universities or recognized dental associations.

(xv) Students from Rural Areas

192. While students from small communities tend to settle in communities of similar size after graduation, it is difficult to attract graduates from large cities to small centres. More students from rural areas should be enrolled in dental schools.

193. As long as the uneven urban - rural distribution of dentists continues, dental schools should give preference to applicants from rural areas, all other factors being equal.

194. If by this measure more students from rural areas are enrolled, it is to be expected that in the future more graduates would establish practices in these areas.

(xvi) Placement of Dentists

195. It is particularly difficult to attract dentists to practise in rural municipalities.

196. Aid should be provided to encourage more dentists to settle in municipalities without resident dentists.

197. This aid should consist of (a) the provision of an equipped dental office preferably in the community hospital; (b) the guarantee of a minimum income in exchange for dental services for children. Adults would be cared for on a fee-for-service basis.

198. The provincial department of health in cooperation with the dental profession could process applications from municipalities for dentists, determining in particular

whether the municipality has sufficient population to support a resident dentist and avoiding overlapping of dental service areas. If these conditions were satisfied, the province could share equally with the municipality the costs involved.

199. More dentists would thus be encouraged to settle in areas where dental services are not now available.

(xvii) Rural and Remote Areas

200. In certain areas, the population is too scattered to warrant a resident dentist. Provision of dental services in these areas creates a special problem.

201. The provincial governments should engage full-time travelling dentists to serve these areas.

202. These dentists could be provided with automobiles and transportable dental equipment. They would receive salaries and would provide dental services for children in the areas in which they travel. After regular office hours, they would be allowed to treat adults on a fee-for-service basis.

203. These projects should be eligible for support from national health grants.

204. This plan should increase the dental care available to residents of remote areas.

(xviii) Extension of Auxiliary Services

205. In order to increase dental productivity the scope of services rendered by auxiliaries must be increased considerably.

206. It is recommended that pilot studies and operational research be supported so that the best methods of using auxiliary personnel both in private practice and in public health services may be determined. These studies must be conducted in dental schools.

207. A national survey committee composed of members of all universities with dental schools should be set up to coordinate these research projects.

208. At the present time, government grants are not available for clinical research projects of this type. It is urged that a government grant of \$50,000 be provided to initiate them.

209. The findings of these studies should give direction to the effective integration of dental auxiliaries into the dental health team.

(xix) Education for Dental Technicians and Assistants

210. At the present time, there are no formal programs for training dental assistants and technicians. More well-trained assistants are needed. Rather than increase the relative technician/dentists ratio, the standard of education and level of training of dental technicians must be elevated to enable them to cope with the increasing complexity of their duties.

211. It is recommended that the training of future dental assistants and technicians be carried out using clinical facilities of university dental schools. The training of present assistants and technicians should be reinforced by planned training courses.

212. It is recommended that the federal-provincial partnership in the field of financial aid for vocational training be extended to facilities for training dental assistants and technicians.

(xx) Hospital Dental Departments

213. Dental departments should be established in all public hospitals in areas where dental personnel are available to provide both in-patient and out-patient services.

214. The by-laws under which such departments are created should permit the provision of professional dental services to patients in accordance with the concepts of modern scientific dentistry, giving due regard and cognizance to the professional judgment and skill of the dentist or dentists who have been duly appointed to the professional staff of the hospital.

(xxi) Admittance to Hospitals

215. Dentists appointed to hospital staffs should be able to fulfill their professional role and assume maximum responsibility for their services unencumbered by restrictive regulatory provisions.
216. Provincial public hospital acts or regulations should be amended to permit dentists appointed to hospital staffs to admit patients to hospitals.
217. The patient admitted to hospital for dental service should be given a physical examination by a member of the medical staff.
218. The dentist would then be able to admit patients to hospital on the same basis as patients are admitted for other generally elective treatments.

(xxii) Outpatient Dental Clinics

219. As the hospital is increasingly becoming a centre for health care services, out-patient dental clinics should be established in public general hospitals especially to assist in meeting the needs of marginal income groups.
220. Dentists who have been accorded hospital staff privileges should provide service on a rotational basis and charges made to patients should be comparable to those assessed for other out-patient services. Facilities, auxiliary personnel and equipment should be adequate to enable the participating dentists to render the maximum of high quality dental care.

(xxiii)Cleft Palate Centres

221. Centres for treatment of cleft palate cases should be established in children's hospitals and in general hospitals where adequate paediatric and associated services are available.
222. Physicians, dentists, surgeons, oral surgeons, orthodontists, psychiatrists, speech therapists, social workers and allied services all contribute to the habilitation of the child born with cleft palate and/or hare-lip defects. Because much is yet to be learned about these potentially crippling problems, research programs should be a concomitant of any treatment services provided.

APPENDICES

THE NATURE, CAUSES, CONTROL AND
TREATMENT OF DENTAL DISEASES (1)

- I. 1. The major types of dental diseases are dental caries, periodontal disease, malocclusion, congenital and developmental anomalies and lesions requiring surgical treatment.

(a) DENTAL CARIES

- I. 2. Dental caries begins on the exterior tooth surface exposed to the oral cavity as a microscopic lesion which enlarges and deepens until the lesion, if untreated, penetrates to the inner pulp. At the time the pulp is being affected, acute pain is usually suffered and subsequently the pulp tissue becomes necrotic. The pulpal infection in time spreads into the supporting bone causing an abscess which remains as a chronic infection until either the tooth is removed or endodontic treatment is performed.

- I. 3. The causes of tooth decay may be roughly grouped into (1) those factors which influence the resistance of the tooth to caries attack and (2) those factors which affect the intensity of the bacterio-chemical caries attack on the tooth surface.

- I. 4. Resistance of the tooth to caries attack is produced by favourable inherited factors and by optimal tooth development. Heredity is thought to influence the caries resistance of the tooth. Teeth may be strongly predisposed to caries if deep fissures or grooves are present.

- I. 5. The deciduous dentition is beginning to form at the sixth month in utero, and the first of the permanent teeth begin to form in the jaws at about birth. The permanent teeth are not usually formed and erupted until close to 15 years of age. Development of the third permanent molars which erupt at about 18 years of age may take even longer. During all these developmental

(1) This section has not been documented since it is a non-scientific presentation of information culled from many sources.

years an adequate diet is essential to the proper development of the teeth and additional ingestion of fluorides has been shown to produce a very significant decrease in caries susceptibility. After the initial development there is evidence that the teeth undergo a post-eruptive maturation process, one phase of which is the very gradual surface absorption of fluoride until at adult life the teeth are on the average considerably less susceptible to caries than when teeth are newly erupted. Post-eruptively the quality of the tooth may be influenced by topical applications of fluoride which produce an immediate high surface concentration of fluorides.

- I. 6. The intensity of the intra-oral caries attack depends mostly on the concentration and duration of time in which fermentable carbohydrates are present in the mouth and available to bacterial action. Consumption of sweet foods or candy at frequent periods during the day will greatly promote tooth decay.
- I. 7. Caries prevention except by public water fluoridation is entirely dependent on the willingness of the individual to ensure that an optimal diet including vitamin D supplement is used during the developmental years and to undertake measures after tooth eruption that will reduce the intensity or duration of the caries attack. Elimination of use of sweet foods between meals and cleaning the teeth immediately after eating have been scientifically shown to greatly reduce dental caries in the individual. Topically applied stannous fluoride solutions are known to reduce the number of new lesions and to a lesser extent protection is also provided through use of a dentifrice containing stannous fluoride. Wide use of these individual control steps on the part of the public is dependent on health education. Evidence of the effectiveness of the measures when understood and applied is available in terms of the reduced caries attack for children of Canadian dentists.

Table I. 1. CRIES ATTACK RATES OF DENTISTS' CHILDREN COMPARED TO POPULATION IN TERMS OF D.M.F. and d.e.f. TEETH

Age	All Children*	Dentists' Children**	Per Cent Reduction %
5	4.96	3.12	53.6
7	8.19	5.20	36.5
9	8.51	6.00	36.9

SOURCE: * National Dental Health Survey, 1960

** Canadian Dental Association, Survey of Recent Graduates

Table I. 2. CRIES CONTROL MEASURES MENTIONED BY DENTIST FATHERS OF CHILDREN SURVEYED

<u>Control Measure</u>	<u>Times Mentioned as Per Cent of Those Responding</u> %
Tooth brushing	55.0
Restriction of sweet foods	54.0
Fluoride supplement	31.0
Good diet	30.5
Fluoride dentifrice	17.5
Topical fluoride	16.0
Regular care	8.5

I. 8. Treatment of established cavities in their initial stages (before pulp involvement) consists of removal of the affected tooth tissue with cutting instruments and its restoration with one of several types of restorative materials. The operative procedures vary according to the type of restorative material used, which depends partly on the degree to which the tooth has been destroyed, and partly on the position of the lesion in the mouth.

I. 9. When carious lesions have penetrated the dentine to a considerable depth or are approaching the dental pulp, an additional protective barrier of chemically inert non-thermal conducting material is necessary for the protection of the dental pulp. When the dental pulp has been infected, or has become abscessed, treatment consists of complete removal of the necrotic pulp tissue from the tooth, sterilization of the pulp chamber, then complete obliteration of the pulp chamber and root canal with filling materials. After this the cavity may be restored in the usual manner. When such treatment is

not possible, or when the destruction of the tooth itself is too advanced, the abscessed teeth are usually extracted under anaesthesia. After the area has healed the missing tooth or teeth can be replaced with a prosthetic appliance. In the case of premature tooth loss for children, appliances are used to prevent drifting of the remaining teeth until the secondary teeth can erupt, otherwise malalignment of the remaining teeth is likely.

(b) PERIODONTAL DISEASE

I. 10 Periodontal disease implies disease of one or more of the supporting tissues of the teeth, namely the cementum or outer root coating of the tooth, the periodontal membrane, the alveolar bone and the gingiva. The pathological processes affecting the periodontal tissues may be inflammatory, degenerative or neoplastic. The disease process tends to progress from the superficial to the deeper tissues.

I. 11 The aetiology of periodontal disease is complex. It appears that bacterial invasion of periodontal tissues occurs after tissue resistance has been lowered by such factors as poor oral hygiene, depositions of calculus, traumatic occlusion, local tissue trauma, or constitutional diseases such as diabetes and malnutrition.

I. 12 If the disease is not controlled, progressive loss of supporting bone results in loosening of the teeth which accentuates the infective process. The three main sequelae are premature loss of teeth, impaired function and establishment of significant areas of oral infection. In studies conducted to determine the causes of tooth extraction it has been shown that up to the end of the 4th decade of life periodontal disease occupies a minor role but after the age of 35 periodontal disease is the major cause of tooth loss.

I. 13 No mass measures for control of periodontal disease are known except in the sense of public health education to promote good nutrition and oral hygiene. Preventive treatment consists mainly of operative and home care procedures designed to eliminate oral factors which reduce the tissue resistance. Specifically, this may include good oral hygiene measures at home, periodic prophylaxis and removal of tartar by instrumentation, the correction of occlusion by grinding teeth or building up biting surfaces with special restorations, and in some cases orthodontic treatment to correct alignment of the teeth.

I. 14 The treatment of periodontal disease depends on the nature of the symptoms and the aetiology. For example, hypertrophy of the gingival tissues may occur for several reasons such as presence of tartar, mouth breathing, or use of drugs such as dilantin. Surgical removal of the hypertrophied tissue may remove the immediate anomaly but not prevent its recurrence. Treatment of acute inflammatory gingivitis such as Vincent's Infection may be carried on by the dentist through drug therapy, cleaning and polishing of the teeth, including removal of calculus deposits and application of therapeutic packs to the tissues.

I. 15 Treatment of chronic periodontal disease (manifested by deepening of the normal gingival crevices into what are known as periodontal pockets, reduction in the level of the bone surrounding the teeth, marked mobility of the teeth and abscessing of the periodontal membrane) is considerably more involved than treatment of gingivitis. Besides undertaking the prophylactic measures mentioned under prevention to improve the general tissue health, surgical removal of affected tissues and splinting of teeth to reduce mobility are often necessary. At present there is no known way to accomplish the complete regeneration of periodontal tissues once they are destroyed by disease. The treatments accomplish the removal of infection and reduction of untoward factors which

for practical purposes intercept a further progression of the tissue breakdown.

(c) MALOCCLUSION

I. 16 Malocclusion may be broadly described to be a deviation from the normal arrangement of the teeth, or from the normal relation of the jaws, or development of the masticatory facial structures to the extent that mastication, speech aesthetics or the continuing health of these structures is affected. There are many manifestations of malocclusion, depending on the aetiological factors and the tissues involved.

I. 17 It is rather rare to find persons with completely ideal occlusion and indeed from 50 to 75 per cent of the population could benefit from some amount of orthodontic treatment. From the public health viewpoint those established cases which may be considered handicapping in the sense that the anomaly would effect their mental wellbeing or ability to obtain employment deserve first consideration. Nearly ten years of research in the Burlington Orthodontic Research Centre have shown that provision of some relatively simple treatment at an early age by the general practitioner can go far to prevent extreme cases from developing. The management of incipient malocclusion and predisposing defects cannot be ignored in the practice of dentistry and indeed has a greater potential for public dental health than the elaborate appliance therapy undertaken by the specialist in treating fully established anomalies.

I. 18 The aetiologic factor causing malocclusion may be inherited, or may have its origin in the systemic or traumatic conditions operative during the developmental period. The harmonious development of the masticatory apparatus is often prevented by distorting forces originating in pernicious habits, lack of function and faulty function during the time of growth: The early recog-

dition and control of these untoward forces is an important aspect of the treatment of malocclusion.

I.19 Prevention of malocclusion consists of early detection and correction of untoward factors such as incipient habits, excess adenoid tissue, anomalies such as supernumary or congenital absence of teeth, dental caries and use of space maintainers when loss has been unavoidable. Early recognition and treatment by simple appliances of inharmonious facial growth before major malocclusion has become established is in the developmental stage, but offers considerable promise of reducing the magnitude of major malocclusion treatment in the future,

I.20 The traditional method of treating malocclusion has been to await the full eruption of the permanent dentition and then rearrange the teeth by use of a highly elaborate and efficient type of appliance therapy while at the same time attempting to eliminate the aetiological factors if they still persist. This procedure, although highly effective, is almost completely a specialist service and there is no doubt that a considerable proportion of the population are unable to receive orthodontic treatment because of cost and because of geographic distribution of the few orthodontists who exist in Canada. The duration of the treatment of malocclusion by major appliance therapy will usually take from six months to three years. After the initial diagnosis and appliance design, it is necessary to maintain, adjust and change appliances until the desired correction has been accomplished.

(d) CONGENITAL ANOMALIES

I.21 The main congenital defects which concern the dental profession are cleft-palate, hare-lip and the congenital tooth defects mentioned under malocclusion. Cleft-palate and hare-lip may be bilateral or unilateral and occur in a wide range of degree

from a slight notch in the back of the soft palate or the lip to complete absence of the hard palate or detachment of the pre-maxillary bones.

- I.22. In the management of cleft palate, surgery is performed at about three months of age to close the cleft. There is a resultant tendency for the scar tissue to interfere with the development of the upper arch. Accordingly, some orthodontic appliance therapy is used in the following years to prevent collapse.

(e) LESIONS REQUIRING SURGICAL TREATMENT

- I.23. There are many tumours that can occur anywhere in the body including the oral cavity, and there is a group of odontomas peculiar to this area. Cysts of the jaw are commonplace, as are various inflammatory swellings. Some of the more frequent ones are overgrowths of the gums resulting from chronic disease. Again, papillomas, fibromas and exuberant bony masses are common occurrences. Less frequently the oro-facial region is the site of a primary cancer where it is obvious that an early diagnosis is essential for the patient's welfare.

- I.24. The diagnosis and treatment of neoplasms in the oral cavity do not differ appreciably from those in the rest of the body inasmuch as the treatment is usually surgical.

- I.25. Other surgical defects of the jaws include the reduction of fractures and lesions of the temporomandibular joint. In these, the special training of the dentist is valuable in re-establishing the proper occlusal relationship of the teeth. Further to these the dentist has the unique qualifications for providing various prosthetic appliances in restoring lost structures and functions.

PREVALENCE, INCIDENCE AND TREATMENT
LEVEL OF DENTAL DISEASE

(a) SOURCES OF PREVALENCE DATA

II-1

Since it is recognized that a considerable proportion of the population (either because of lack of education or money) do not regularly or completely have dental treatment,⁽¹⁾ the data emanating from indigent services, hospital clinics, etc. are not representative of the population at large. Most of the reliable data comes from direct survey of entire sub-populations of school children. Adult surveys have not been attempted in Canada on any large scale, and available data usually come from special groups such as civil servants or military personnel; however, some data are available from large scale American studies. Because dental statistics are usually obtained from relatively small direct surveys, the statistical methods for gathering and analyzing the data are of necessity more sophisticated than needed in the usual medical statistics which result from legally required reporting of disease for entire populations.

(b) NATIONAL DENTAL HEALTH INDEX

II-2

In 1958, the Canadian Dental Association at its annual meeting recognized the need for creation of a national dental health index. A method for conducting standard surveys was prepared and published,⁽²⁾ and this method has been adopted on a wide basis by Canadian dental health authorities. The Canadian Dental Association through its Council on Public Health has volunteered to give advice to provincial agencies undertaking dental surveys, and has also undertaken to integrate data it receives from the provinces

(1) Canadian Sickness Survey, Table 5, Special Compilation no. 1, Dominion Bureau of Statistics, May 1953.

(2) Canadian Dental Association, The Evaluation of Canadian Dental Health, A System for Recording and Statistical analysis at the Community, Provincial, and National Level, July, 1959.

into a national dental health index so that national variations and trends in dental disease may be studied.

II-3

The National Dental Health Index provides comparative data falling into four main classes:

1. relative prevalence of dental caries;
2. relative prevalence of periodontal disease;
3. relative prevalence of malocclusion;
4. relative degree of treatment accomplished.

In 1961, it was possible to inaugurate the collection of data in representative municipalities of between 5,000 and 100,000 population for school children in six Canadian provinces. These data are the basis of some treatment need estimates supplied in this submission.

(c) INDICES OF DENTAL DISEASE AS USED IN NATIONAL DENTAL HEALTH INDEX

II-4

To a large extent indices of dental disease have been developed in the past for the purpose of accomplishing epidemiological comparisons as an aid to research, viz. testing of control measures such as fluoridation. In such situations, reproduceability and economy of survey time have been the foremost considerations rather than estimation of absolute frequency of cases needing treatment. The proportions of population needing treatment are constant functions of the "true" disease prevalence; but, as has been implied above, the need for treatment in the public health sense cannot be estimated without knowledge of socio-economic factors and firm definitions of the degree or severity of disease considered to be of public health significance.

II-5

Aside from epidemiological research, the National Dental Health Indices are widely used by Canadian dental health agencies to provide comparative data for use in the planning and evaluation of dental public health programs. It has become obvious that

direction and development of dental public health programs must be done in the light of facts gathered through direct, annual surveys of the population rather than (as has too often been attempted in the past) by tabulating the number of operations performed out of an unknown backlog of treatment need.

II. 6. The dental indices developed by the Canadian Dental Association are not based on the recording of clinically diagnosed diseases or syndromes except in the case of dental caries. Such data have been considered too unreliable for research purposes due to lack of agreement of clinicians as to the set of signs or symptoms which must be present for a clear diagnosis. The long term value of such statistics would be doubtful because, as understanding improves, the criteria for case diagnosis will change. The method of the Canadian Dental Association is to record signs or objective observations known to be related to the prevalence of periodontal disease and malocclusion. The interrelationships of these observations are studied to learn more of the aetiology of disease and the changes in the prevalence of these objective signs are used to infer changes in the prevalence of disease. Thus, if the index or objective signs change in prevalence, we may be certain the prevalence of the major syndromes has changed even though the syndromes themselves are as yet not clearly defined.

II. 7. The National Dental Health Index which was designed for scientific purposes, cannot be used to estimate treatment needs of a public health level unless more or less arbitrary definitions of the degree of disease considered to be of public health significance are first provided. A study of the public health significance of dental disease is a prerequisite to any discussion of treatment needs.

(d) OBLIGATIONS IN DENTAL STATISTICS UNDER WORLD HEALTH ORGANIZATION

II-8

In November 1961, Canada was represented on a committee of international statistical experts who met in Geneva to recommend standard indices and reporting procedures for gathering statistics on dental disease on an international basis. Under the charter of the World Health Organization, member nations are committed to undertake the gathering and reporting of dental statistics as described in the technical bulletin of that organization. Canada is probably farther advanced than any other country in this work and most of the data gathered in connection with the National Dental Health Index are usable for World Health Organization purposes.

(e) INFERENCES REGARDING CANADIAN DENTAL HEALTH REFLECTED BY THE NATIONAL DENTAL HEALTH INDEX

II-9

Table II-1 is taken from the first National Dental Health Index report. Some description and brief comments regarding the general state of dental health in Canada as reflected by these data are pertinent.

(i) No Dental Defects

II-10

Index item 1 estimates those who are theoretically in perfect dental health as a result of completed treatment of all types of defects which they may have incurred. This figure could never be 100 per cent because the surveys tend to catch individuals at different stages of their annual dental treatment. Some have just completed visits to the dentist, and some might be going the next day after the survey. Nevertheless, the index estimates the number of persons in the most ideal state possible until complete prevention prevails. It can be seen that the national average figure for children between 7 and 13 years of age is just 13.2 per cent. There is considerable variation in this figure among provinces.

(ii) No Caries Defects

II-11

Index item 2 estimates the group which has caries treatment completed or never needed, disregarding other types of defects. It is again an estimate of the dynamic state of treatment because a survey catches individuals at various intervals between dental appointments. It is important that the population keep their teeth in as near perfect repair as possible rather than in varying states of disrepair. If the former is the aim, the masticatory apparatus is constantly more healthy and the reparative work less difficult and more likely to succeed because small incipient lesions constitute the major treatment requirement. In contrast, if few of the population try to keep their teeth in complete repair, the reparative work involves more complications hence is less successful and much time is lost in non-constructive emergency service. In early phases of dental health programs, this index has been noted to be as low as five per cent, whereas in areas where intensive educational programs are active it has reached as high as 50 per cent.

(iii) Visited Dentist

II-12

Index item 3 estimates the group which has visited a dentist for some tangible service. In particular parts of the country where dental services are difficult to obtain or where the level of health education is low, the primary objective of a dental health program is to teach the population the value of dental treatment per se. This index is the first objective means of measuring response to educational work by the public health authorities. There is very marked variation among provinces in this index.

Table II-1 NATIONAL AND PROVINCIAL ESTIMATES

Dental Class	Dental Index	P. E. I.	
Dental Care	1. No dental defects	4.5%	
	2. No caries defects	10.3%	
	3. Visited dentist	77.8%	
	4. Decid. tooth mortality	43.6%	
	5. Perm. Tooth Mort.	29.7%	
	6. Perm. decid. teeth needing restoration	4.37	
	7. Space maintainers		
	8. Orthodontic treatment		
Tooth Decay	9. Caries free children Deciduous teeth		
	10. Permanent teeth	16.6%	
	11. Perm. and Decid. teeth		
	12. d.e.f. teeth		
	13. D.M.F. teeth	5.48	
	14. D.M.F. plus d.e.f. teeth	9.01	
Oral Hygiene	17. Poor Oral hygiene	39.0%	
Periodontal	18. Abnormal gingiva	26.0%	
Malocclusion	20. Abnormal occlusion	52.1%	

* The data provided in Ontario came mainly from regions where a trained dental health officer was available to do the examinations and hence had been operating an educa-

OF DENTAL HEALTH OF CHILDREN 7 TO 13

P r o v i n c e					
N.S.	P.Q.	Ont. *	Man.	B.C.	Can.
21.1%	4.2%	23.7%	6.2%	6.5%	13.2%
22.7%	9.5%	35.6%	16.1%	17.2%	21.5%
45.8%	23.8%	72.3%	59.2%	80.7%	49.9%
38.8%				35.5%	
30.6%	38.1%	16.1%	21.4%	16.7%	
3.63	4.26	2.35	3.26		3.37
		1.1%	.4%	.5%	
				.8%	.7%
			15.6%	34.1%	
16.1%	11.1%	28.7%	19.7%	12.4%	18.8%
3.2%	2.7%	9.2%	4.3%	2.6%	5.3%
4.18	4.16	3.01	3.72	4.2	
7.77	7.74	6.25	7.26	8.9	
42.8%	31.8%	17.0%	49.3%	43.7%	30.2%
15.3%	18.7%		21.4%	23.7%	16.3%
49.9%	55.0%	37.0%	59.9%	64.4%	48.9%

tional program for some time. If the data are not completely typical for Ontario it is due to the success of the educational programs.

(iv) Deciduous Tooth Mortality

II-13

Index item 4 estimates the group of children who have lost one or more deciduous teeth or crowns prematurely because of dental caries. In the last analysis, the measure of a dental program is the saving of the teeth either because caries has been completely or partially prevented or through a successful treatment program. Multiple loss of teeth is common, but the present form of the index is maintained because most cases having one or more prematurely lost deciduous teeth represent potential orthodontic cases and this need is easier to assess when the individual person is the observational unit. Around 50 per cent of the children lose at least one deciduous tooth prematurely as a result of failure to obtain timely treatment.

(v) Permanent Tooth Mortality

II-14

Index item 5 estimates the number of individuals with one or more permanent teeth extracted due to caries. The loss of teeth tends to be lower when treatment is undertaken as early as possible after the beginning of a carious lesion. By age 13, over 40 per cent of Canadian children have lost one or more permanent teeth.

(vi) Permanent and Deciduous Teeth Needing Restoration

II-15

Index item 6 estimates the backlog of dental restorations and is probably the best figure for use in computing dental caries treatment man hours. The count of affected tooth units rather than discrete lesions is used because it represents a great simplification in survey work, but the average numbers of lesions per affected tooth unit may be estimated by a mathematical formula. The national survey is done by clinical examination which is satisfactory for epidemiological purposes, but it is recognized that use of radiographs would reveal more caries. The estimate of

increase when radiographs are used has been shown to be in the order of 15 per cent. (1) The national average backlog of teeth needing treatment per child 7 to 13 years of age is in the order of 3.4.

(vii) Space-Maintainers

II-16.

A space-maintainer is a device used to prevent drifting of teeth after a premature deciduous tooth loss and to prevent closing of the space into which the permanent tooth must erupt. Failure to maintain the space results in an unnecessary form of malocclusion. The device is very easily recognized and hence provides an index of the level of dental treatment (index item 7). The space-maintainer need is some function (approximately 60 per cent) of the deciduous tooth mortality index - i.e. about 40 per cent of the children need space-maintainers. The need for space-maintainers is age specific - rising to a peak at about nine years then disappearing as the deciduous teeth are naturally shed. Except in isolated communities where dental health education programs are active, the use of space-maintainers is seen in less than one per cent of the population.

(viii) Orthodontic Appliance

II-17

Index item 8 describes the group of children currently undergoing orthodontic treatment. This index is valuable because it is very objective and thus a good means of comparing the level of orthodontic treatment in communities. The level of orthodontic treatment need is discussed under abnormal occlusion, but it is clear that the percentage of children receiving treatment is less than one per cent.

(1) Barr, J.A., 'The Diagnostic Value of Radiographic Examinations for Proximal Caries in Deciduous Posterior Teeth', New Zealand Dental Journal, Vol.41; p. 89, 1945.

(ix) Indices of Dental Caries Prevalence

II-18

Index items 9, 10 and 11, estimate the proportion of the population who have not yet shown any symptoms of dental caries disease on respective dentitions. It is the ultimate aim to have control or preventive measures developed through research so that this index may reach 100 per cent. By about age 13, 98 per cent of the population has had one or more teeth decayed.

(x) d.e.f. and D.M.F.

II-19

Index items 12, 13 and 14 give the average lifetime caries experience per person in terms of counts of the numbers of teeth per person which are either restored, extracted or have open cavities on the deciduous (d.e.f.) or permanent teeth (D.M.F.). This system of measuring dental caries is internationally recognized and provides a sensitive index of the intensity of the disease in a population for purposes such as fluoridation studies. The distribution of D.M.F. caries scores exhibits super variation indicating real differences (beyond chance) in the numbers of teeth affected per person. These differences are attributed to the differing degree to which individuals assume responsibility for using known control measures. It is considered (with the exception of public water fluoridation) that the individual person's dental caries level will only be influenced through intensive dental health education.

(xi) Poor Oral Hygiene

II-20

Index item 17 describes the persons with very unsatisfactory oral hygiene. Since the commonest form of periodontal disease (gingivitis) is correlated with the degree of oral hygiene it is important to teach good oral hygiene at an early age. In the ages 7 to 13, about 30 per cent of the children have poor hygiene.

Table II.2. PERCENTAGE OF ONTARIO CIVIL
SERVANTS WITH POOR ORAL HYGIENE

Sex	Age in Years								Total
	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	
	%	%	%	%	%	%	%	%	%
Male	40.0	51.0	60.6	63.4	88.8	70.2	82.3	82.3	67.3
Female	16.4	16.6	13.3	28.5	37.5	48.2	56.2	54.1	33.8
Average	28.2	33.8	36.9	45.9	63.2	59.2	69.2	68.2	50.5

SOURCE: Mehta, M.M., Grainger, R.M., and Williams, C.H.M., 'Periodontal Disease Among Adults', Journal of the Canadian Dental Association, 21:617, 1955.

(xii) Abnormal Gingiva

II-21

Index item 18 gives the number of the population having objective signs of gingival inflammation known to be related to oral hygiene and thought to predispose to more serious forms of periodontal disease. Sixteen per cent of the children and close to 80 per cent of the adults have gingival inflammation.

(xiii) Abnormal Occlusion

II-22

Index item 20 gives an objective comparison of the group of persons with specific irregularities in the arrangement of their teeth. About 50 per cent of the population of children are reported to have one or more types of occlusal abnormality. Some forms of malocclusion decrease when the destruction through dental caries is controlled ⁽¹⁾ and considerably more decrease through early recognition and management of predisposing defects such as congenital tooth malformation. ⁽²⁾ The amount of malocclusion in a population drops significantly under the influence of early care as encouraged through dental health education.

(1) Hill, I.N., Blayney, J.R., Wolf, W., The Evanston Dental Caries Study XIX, Prevalence of Malocclusion of Children in a Fluoridated and control Area, Journal of Dental Research, 38:782, 1959.

(2) Transactions of A Workshop in Orthodontics, Ann Arbor, Michigan, June, 1958.

(f) DIFFICULTIES IN ESTIMATING TREATMENT NEEDS
OF THE POPULATION

II-23

The true prevalence of dental disease with our present level of knowledge is either not exactly determinable or as in the case of dental caries close to 100 per cent. Periodontal disease has its serious clinical manifestations in adult life whereas dental caries occurs most frequently under age 30. Malocclusion is to a considerable extent the result of faulty development of the facial bones or teeth themselves, hence is present at almost its peak prevalence by the time the full complement of teeth is erupted. Pathological defects such as cysts and neoplasms and traumatic defects such as fractures occur in the population at various ages depending on the defect specified.

II-24

Dental caries is readily observable either clinically or by radiographs and the presence of a lesion always necessitates treatment. The diagnosis of acute infections, injuries and pathological lesions is also highly objective and usually a clear indication of treatment need. In contrast to the above the diagnosis and priority for treatment of chronic periodontal disease and especially malocclusion are complicated by consideration of the intensity of the anomaly. Setting aside the current severity of the lesions, treatment may be given from the preventive point of view because periodontal disease is usually progressive, and hence treatment of incipient forms of the disease may be considered a means of preventing more serious late tissue involvement. The public usually does not recognize chronic periodontal disease until the time when it is almost beyond treatment. A great amount of health education is needed to interest the public in preventive services.

II.25.

The public is usually concerned only when the malocclusion is of a type or degree that seriously impairs the individual's appearance or function. Dentists know that malocclusion, even though non-handicapping, can cause masticatory inefficiency, speech defects, tissue trauma and predisposition toward periodontal disease and caries. From the public health viewpoint, selection of malocclusion cases needing treatment must be undertaken in terms of a priority score reflecting the degree of handicap. Research on an index for determining treatment priority is currently under development at the Burlington Orthodontic Research Centre.

PRELIMINARY ESTIMATES OF DENTAL SERVICE
NEEDS OF THE POPULATION

(a) TREATMENT REQUIREMENTS

III-1 Table III-1 presents the best estimate of treatment needs of the population that can be made at this date. The table has been assembled from fragmentary information taken from various sources and some figures represent educated guesses. While the data collected are felt to be sound enough for the purpose of gaining initial insight into dental treatment needs, a wide study of the dental health problem in the light of the socio-economic factors which bear on the provision of treatment in this country is essential.

III-2 The dental practitioner must be prepared to undertake a very wide variety of treatments depending on the intensity of the specific defect and the degree to which neglect has complicated the treatment need. A considerable number of the treatment procedures which the dentist must be trained to perform are of relatively lower frequency, for example, some simple orthodontic procedures or management of fractured teeth in children. Nevertheless, it is essential when planning a treatment service to provide for these services otherwise the overall service would be severely downgraded. A further class of treatment such as endodontic therapy and the provision of prosthetic appliances in the case of tooth loss arises due to neglect of restorative dentistry; thus the frequency of these services depends on the effectiveness of the treatment program and cannot be estimated truly in advance of the establishment of the program.

III-3 No attempt is made here to clearly define the role of the specialist in the provision of these treatments, but it is believed that some items, such as management of cleft palate cases, major

oral surgery, extreme handicapping malocclusions and complicated periodontal problems are not likely to be undertaken by the general practitioners. However, it needs to be stressed that the philosophy of prevention is gradually but definitely changing the practice of dentistry. It is expected that in the future the dentist will spend less time in terminal treatment of gross defects and far more time on diagnosis and management of incipient conditions. Emphasis on interception and prevention of serious dental disease will eventually result in much higher standards of dental health than are possible under the reparative system. Research in preventive dentistry and the education of the public to seek preventive services are the keys to success in meeting the dental problem.

Table III - 1 DENTAL SERVICE NEEDS

Purpose of Service	Item	Description of Operation or Service	
Caries Prevention and Diagnosis	1	Polishing Teeth followed by Topical Stannous Fluoride Application	
	2	Caries control consultation, diet study, saliva tests and prescriptions	
	3	Examination for Dental Caries including Bite wing X-rays	
Treatment of Tooth Cavities	4	Backlog of untreated caries	Birth to age 14
			Adults
	5	Annual Increment of new caries	Birth to age 14
			Adults
Operations arising from neglect of early caries treatment	6	Treatment of exposed pulps	
	7	Endodontic treatment	
	8	Apicectomy (treatment of apical abscess)	

	Estimated Prevalence of Defect or Frequency	Source	Time for Service
	yearly 2 to 16 years		30 Mins.
	Minimum of 10% of population		1 Hr.
	yearly		20 Mins.
	average 3.4 teeth or 5.8 surfaces	(1)	3 Hrs.
	average 2.9 teeth or 5.0 surfaces	(2)	2 Hrs. 30 Mins.
	average 1.9 new cariouss surfaces	(1)	1 Hr.
	average 0.7 new cariouss surfaces	(3)	30 Mins.
	0.01 per person	(2)	30 Mins.
	0.02 per person	(2)	4 Hrs.
	not estimated		30 Mins.

Purpose of Service	Item	Description of Operation or Service
	9	Tooth Extraction
	10	Space Maintainer
	11	Space regainer
	12	Partial Prosthesis fixed or removable
	13	Full Prosthesis
Periodontal Disease Prevention and Diagnosis	14	Prophylaxis including removal of calculus
	15	Periodontal Disease Control consultation, diet study, tooth brush instruction, prescriptions
	16	Occlusal equilibration
Treatment of Periodontal Disease	17	Antibiotic therapy
	18	Periodontal packing
	19	Gingivectomy
	20	Periodontal Pocket Surgery
	21	Splinting of teeth
	22	Occlusal reconstruction
Prevention, or interception of Malocclusion	23	Diagnosis and consultation including study models and radiographs
	24	Management of Predisposing Tooth Defects
		(a) Congenitally missing teeth
		(b) Supernumerary teeth
		(c) Malformed teeth
		(d) Oversized teeth, and undersized teeth
		(e) Submersion of deciduous teeth and delayed eruption
		(f) Ectopic eruption of teeth
		(g) Premature tooth loss
	25	Management of general predisposing conditions (a) Nasal pharyngeal obstructions

	Estimated Prevalence of Defect or Frequency	Source	Time for Service
	not estimated		
	0.22 per person 5-9yrs. 20% of persons 5-9yrs.	(2) (1)	1 Hr.
	not estimated		45 Mins.
	not estimated		4-5 Hrs.
	8.4 % of pop. 15 years and over	(2)	4 Hrs.
	once per year for adults		30 Mins.
	minimum of 10% of population		2 Hrs.
	not estimated		90 Mins.
	minimum 9.6% of population	(2)	15 Mins.
			90 Mins.
			2 Hrs.
			3 Hrs.
			3 Hrs.
			10 Hrs.
	not estimated		4 Hrs.
	3.8% of pop.	(4)	18 Hrs.
	0.6% of pop.	(4)	10 Hrs.
	0.9% of pop.	(4)	10 Hrs.
	9.3% of pop.	(4)	18 Hrs.
	1.5% of pop.	(4)	10 Hrs.
	0.4% of pop.	(4)	18 Hrs.
	18% of pop.	(4)	18 Hrs.
	8% of pop.	(4)	1 Hr.

Purpose of Service	I t e m	Description of Operation or Service
		(b) Lack of Lip seal (habitual mouth breathing) (c) Endocrine conditions and metabolic anomalies (d) Macroglosia (e) Management of pernicious habits (f) Disharmony or asymmetry in jaw development
Treatment of Malocclusion (on handicapping priority basis)	26 27 28 29 30 31 32 33 34 35 36	Faulty Antero posterior jaw relationship Anterior crossbite Posterior crossbite Overbite Overjet Openbite (anterior) Mid-line diastema General crowding of teeth in arches General spacing of teeth in arches Individual tooth malalignment or rotation Management of cleft palates Distocclusion Mesiocclusion
Surgical correction of pathological anomalies	37 38 39 40 41 42 43 44 45	Neoplasms Alveolar and periodontal abscesses Obstructed Salivary ducts Fractures of maxilla or mandible Articular joint defects Mandibular re-section for correction of prognathism Alveolectomy Surgical removal of Impacted teeth Surgical removal of roots from alveolar sinus and closure of sinus openings
Miscellaneous	46	Management of Fractured Anterior Teeth from Trauma

	Estimated Prevalence of Defect or Frequency	Source	Time for Service
	not estimated		1 Hr.
	not estimated		
	not estimated		
	21% of pop.	(4)	
	0.9% of pop.	(4)	
	23.0% of pop.	(4)	Treatment time depends on particular combination and severity of defects. Average time for handicapping case approx. 3 years
	1.9% of pop.	(4)	
	1.9% of pop.	(4)	
	6.7% of pop.	(4)	
	24.6% of pop.	(4)	
	39.4% of pop.	(4)	
	4.5% of pop.	(4)	
	2.6% of pop.	(4)	
	approx. 10% of pop.	(4)	
	approx. 7% of pop.	(4)	
	10% of pop.	(4)	Intermittent from age 7 to 19 years.
	Treat about 80% of 1 in 800 live births	(5)	
	Oral Biopsies 1 person per 3000 all'ages	(6)	
	not estimated		
	not estimated		
	not estimated		
	not estimated		
	not estimated		
	not estimated		
	not estimated		
	not estimated		
	1.0% of pop.	(2)	

"By no means all the work a dentist has to do is at the chairside and 33 hours a week at the chairside means in general some 42 working hours a week."⁽¹⁾

III-9

If 1500 is taken as a fair estimate of the hours a dentist can spend at the chairside then 19,600 dentists would be required to meet the initial care requirements of children 2 to 16. Annual maintenance care for this age group would require 11,600 dentists.

(d) COSTS

III-10

In 1962, the average net income from professional services of dentists in Canada will probably be about \$11,750. Gross income will amount to approximately \$23,500 per dentist. If 11,600 dentists were available to provide maintenance care to the 2 to 16 year old age group, the cost of this service alone would be \$272,600,000.

III-11

These figures clearly demonstrate the utter impracticability (both from the standpoint of personnel and economics) of attempting to institute a dental treatment program before all available methods of prevention have been fully utilized.

(1) Page 6 of Spens Report (Cmd. 7402) as quoted on p. 16 of the Report of the Working Party on the Chairside Times taken in carrying out treatment by General Dental Practitioners in England, Wales, and Scotland, London: His Majesty's Stationery Office, 1949.

UTILIZATION OF DENTAL SERVICES

(a) PER CENT OF THE POPULATION RECEIVING DENTAL CARE

IV-1

There are at present only two sources of information on the per cent of the Canadian population receiving some dental care annually: the 1950-51 Canadian Sickness Survey prepared by the federal government and the 1958 Survey of Dental Practice conducted by the Canadian Dental Association.

(i) Canadian Sickness Survey

IV-2

In this survey, a record was kept of the number of visits made to dentists' offices or clinics (other than school dental clinics). The survey showed that about one person in seven had visited a dentist during 1950-51; 27.6 per cent of all families reported some expenditure for dental care during the period. On the average there were 323 dental visits per 1,000 population.

IV-3

The per cent of the population receiving dental care and the average number of dental visits varied considerably according to age, sex and geographic location. More females than males, more of the 15-24 age group than other age groups and more westerners than easterners received dental care.

Table IV-1 PER CENT POPULATION REPORTING DENTAL CARE, BY AGE AND SEX, 1950 - 1951.

Age	Sex		Total %
	Male %	Female %	
under 15	13.2	14.2	13.7
15 - 24	18.0	23.7	20.9
25 - 44	14.3	21.7	18.0
45 - 64	9.8	11.5	10.6
Total	13.0	16.5	14.7

SOURCE: 'Illness and Health Care in Canada', Canadian Sickness Survey, p. 187.

Table IV - 2 AVERAGE DENTAL VISITS PER PERSON
REPORTING DENTAL CARE, BY AGE AND SEX, 1950 - 1951.

Age	Sex		Total
	Male	Female	
under 15	1.89	2.01	1.95
15 - 24	2.37	2.65	2.53
25 - 44	2.03	2.30	2.20
45 - 64	1.95	2.37	2.17
Total	2.04	2.31	2.19

SOURCE: 'Illness and Health Care in Canada', Canadian Sickness Survey, p.187.

Table IV - 3 PER CENT POPULATION REPORTING
DENTAL VISITS AND AVERAGE DENTAL VISITS PER PERSON
REPORTING DENTAL CARE, BY REGION, 1950 - 1951.

Region	Per Cent Population	Average Dental Visits
	%	
Newfoundland	3.8	1.32
Maritimes	14.4	2.27
Quebec	8.3	1.47
Ontario	18.0	2.26
Prairies	17.3	2.26
British Columbia	22.6	2.80
Canada	14.7	2.19

SOURCE: 'Illness and Health Care in Canada', Canadian Sickness Survey, p.188.

(ii) Survey of Dental Practice

IV-4

The Surveys of Dental Practice conducted by the Canadian Dental Association every five years, have shown that the average practising dentist saw 1070 patients in 1953 and 1000 patients in 1958. Those dentists who replied to the surveys treated 12.6 per cent of the population in 1953 and 11.2 per cent in 1958. But these dentists represented only 33 and 39 per cent of all dentists practising in the respective years. If all private dentists saw patients at the same rate as the responding dentists, 36 per cent of the population received some dental care in 1953 and 32 per cent in 1958. The decrease from 36 to 32 per cent is not considered significant.

Table IV - 4 ESTIMATED PER CENT OF POPULATION RECEIVING DENTAL CARE BY PROVINCE 1953 AND 1958.

Province	1953	1958
	%	%
Newfoundland	10.1	9.6
Prince Edward Island	22.3	13.3
Nova Scotia	31.4	23.3
New Brunswick	23.1	24.0
Quebec	28.4	27.3
Ontario	43.5	39.5
Manitoba	35.4	27.3
Saskatchewan	33.4	31.0
Alberta	40.5	38.4
British Columbia	43.6	32.7
Canada	36.5	32.1

(b) PERSONAL EXPENDITURES ON DENTAL CARE

IV-5 According to the Canadian Sickness Survey, the Canadian people spent \$32,900,000 on dental services in 1950-51. This amount represented 8.8 per cent of the total expenditure on health care. While the average amount spent on dental care was \$26.20 per spending family, it was only \$7.20 per family and \$2.50 per individual for the total population. Eighty per cent of all spending families spent less than \$40 on dental services during the year. Only five per cent spent more than \$100.

Table IV - 5 AVERAGE EXPENDITURE ON DENTAL SERVICES PER FAMILY AND PER SPENDING FAMILY, BY REGION 1950 - 1951.

Region	Average Expenditure	
	Per Spending Family	Per Family
	\$	\$
Newfoundland	10.00	1.30
Maritimes	20.18	5.60
Quebec	19.49	4.70
Ontario	28.51	7.90
Prairies	26.72	8.00
British Columbia	35.29	12.80
Canada	26.20	7.20

SOURCE: 'Illness and Health Care in Canada,' Canadian Sickness Survey, p. 209.

Table IV - 6 DISTRIBUTION OF FAMILIES WITH
DENTAL EXPENSES BY AMOUNT OF EXPENDITURE, 1950 - 1951.

Expenditure	Spending Families	
	Per Cent	Cumulative Per Cent
	%	%
\$ 1 - 9	43.0	43.0
\$ 10 - 19	20.9	63.9
\$ 20 - 39	16.4	80.3
\$ 40 - 69	10.3	90.6
\$ 70 - 99	4.0	94.6
\$ 100 - and over	5.4	100.0

SOURCE: 'Illness and Health Care in Canada', Canadian Sickness Survey, p. 208.

IV-6

Provisional estimates from the Department of National Health and Welfare indicate that \$96,000,000 was spent on dentists' services in 1960. This is 6.5 per cent of total expenditures on personal health care and is \$5.39 per capita.

Table IV - 7 TOTAL AND PER CAPITA EXPENDITURES
ON DENTISTS' SERVICES AND PER CENT OF ALL EXPENDITURES
ON PERSONAL HEALTH CARE, CANADA, 1953 - 1960.

Year	Expenditures		Per Cent of all Health Expenditures
	Total	Per Capita	
	\$	\$	%
1953	61,600,000	4.15	8.3
1954	64,500,000	4.22	7.9
1955	70,900,000	4.52	8.1
1956	84,800,000	5.27	8.3
1957	85,500,000	5.15	7.7
1958	88,000,000	5.16	7.2
1959	92,000,000	5.27	6.9
1960	96,000,000	5.39	6.5

SOURCE: Provisional estimates of the Department of National Health and Welfare.

IV-7

The per capita expenditure for dentists' services in 1953 was \$4.15 compared with the 1960 estimate of \$5.39. However, when account is taken of changes in the price index of dental fees, a 1953 constant dollar figure of \$3.47 compares with a 1960 constant dollar figure of \$3.48 (1949=100). There appears to have been no increase in the effective demand for dental services.

Table IV - 8 PER CAPITA EXPENDITURES FOR DENTAL CARE, IN ACTUAL AND CONSTANT DOLLARS, 1953 - 1960

Year	Per Capita Expenditure	
	Actual Dollars	Constant Dollars (1949=100)
	\$	\$
1953	4.15	3.47
1954	4.22	3.41
1955	4.52	3.54
1956	5.27	4.04
1957	5.15	3.72
1958	5.16	3.56
1959	5.27	3.52
1960	5.39	3.48

IV-8 Expenditures per patient can be roughly estimated at \$11.38 in 1953 (\$9.52 in constant dollars) and \$16.06 in 1958 (\$11.08 in constant dollars).

IV-9 It seems possible that, if the percentage of the people obtaining dental treatment has decreased between 1953 and 1958, those people visiting a dentist have received more dental services.

IV-10 The per cent of families receiving dental care and the amount of money spent on dental care appears to be considerably higher in certain cities.

Table IV - 9 PERCENTAGES OF FAMILIES REPORTING EXPENDITURES ON DENTAL CARE AND AVERAGE DOLLAR EXPENDITURE PER FAMILY, BY CITY, NINE CITIES, 1957.

City	Per Cent Reporting Expenditure	Average Dollar Expenditure
	%	\$
St. John's	30.3	15.10
Halifax	64.6	27.40
Three Rivers	44.4	16.90
Montreal	45.9	21.40
Toronto	65.3	32.20
Kitchener-Waterloo	71.4	31.30
Winnipeg	70.0	35.00
Edmonton	63.3	24.00
Vancouver	76.1	43.70
Nine-city composite	58.0	27.30

SOURCE: Dominion Bureau of Statistics, City Family Expenditure, 1957, Table 7.

REASONS FOR DENTAL NEGLECT

V-1 What information exists indicates that the prevalence of dental disease is close to 100 per cent⁽¹⁾ yet no more than one-third of Canada's population receives even palliative treatment in any one year. While the reason for this discrepancy between the need and the demand for dental services has been the subject of much speculation, no definitive motivational study of the problem has ever been undertaken in Canada.

V-2 The percentage of the people receiving dental care varies greatly according to:

income
age
sex
region
residence
educational level
childhood training.

(a) INCOME

V-3 One apparent barrier to Canadians receiving more dental services is economic. The 1950-51 Canadian Sickness Survey showed that "the average number of dental visits increased consistently from one income group to the other. The average number of dental visits per 1,000 population for the upper high income group was more than three times as great as the comparable average for the low income group," (2) The survey also indicated that the per cent of families reporting care and the average expenditure for that care increased with income level.

(2) 'Illness and Health Care in Canada', Canadian Sickness Survey, 1950-51, p.55.

(1) See Appendix II

Table V - 1

DENTAL SERVICES, BY FAMILY INCOME

Family Income	Per Cent of Families Reporting Income	Average Expenditure per Spending Family
	%	\$
Low	14.2	18.20
Medium	32.3	22.00
Lower high	40.5	31.30
Upper high	45.7	45.50
All families	27.6	26.20

SOURCE: 'Illness and Health Care in Canada, Canadian Sickness Survey, 1950-51, p. 208.

V-4

But there are obviously other reasons for dental neglect. Five Canadian provinces have programs of dental care for certain classes of public assistance recipients. The patient pays part of the cost of denture work, but other services are free. The highest acceptance rates are experienced among the dependents of Mothers' Allowance beneficiaries, but even in Alberta where the program has been operating for 14 years, only 51 per cent of the children visit a dentist in a year.

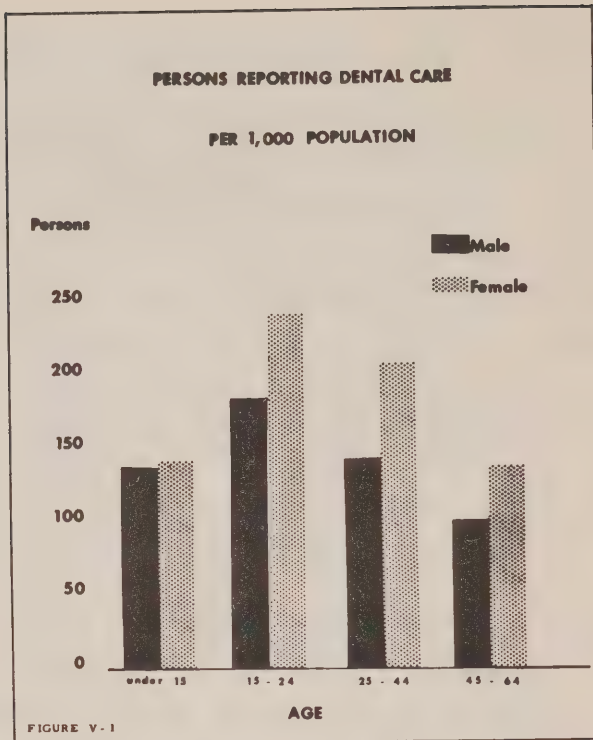
(b) AGE AND SEX

V-5

Utilization of dental services varies according to age and sex. The Sickness Survey has shown that 60 per cent of persons visiting dentists are women. Women are possibly more interested in the appearance of their teeth and may find it more convenient to visit the dentist during the day than do men.

V-6

The 15 - 24 age group has the highest utilization rate. This may be the result of a combination of greater concern with personal appearance and money available to spend at this age. The rate declines steadily after the age of 24.



SOURCE: 'Illness and Health Care in Canada', Canadian Sickness Survey, 1950-51, p. 189.

(c) REGION AND RESIDENCE

V-7

The per cent of the population receiving dental care differs considerably in the geographic regions of Canada.⁽¹⁾ It is probable however, that these regional differences result from two interacting factors - the availability of dental personnel and per capita personal disposable income.

(1) Ibid., p. 188

Table V - 2 PER CENT POPULATION REPORTING DENTAL VISITS, POPULATION PER DENTIST, AND PER CAPITA PERSONAL DISPOSABLE INCOME, BY REGION, 1950-1951.

Region	Per Cent Population Reporting Dental Visits %	Population per Dentist	Per Capita Personal Disposable Income \$
Newfoundland	3.8	16,714	546
Maritimes	14.4	3,799	717
Quebec	8.3	3,460	871
Ontario	18.0	2,126	1,222
Prairies	17.3	3,154	1,203
British Columbia	22.6	2,203	1,234

SOURCE: 'Illness and Health Care in Canada',
Canadian Sickness Survey, p. 188;
Canadian Dental Association, Statistical
Data Re Dental Personnel in Canada, 1951;
Dominion Bureau of Statistics, National
Accounts Income and Expenditure, 1951.

V-8

An American study has commented on the marked differences in the frequency of dental visits occurring among persons living in urban and rural areas.⁽¹⁾ Although no comparable figures are available for Canada as a whole, the Saskatchewan Department of Public Health issues annual figures on the utilization of dental services by residence for its public assistance beneficiaries.

V-9

Other than partial payments for denture work, this group faces no economic obstacles to receiving care. The "all services" rate is highest for the cities. However, the rates for fillings and extractions are perhaps the most revealing. The rate for fillings in the cities is well above those for other types of residence while the rate for extractions is the lowest. This

(1) U.S. Department of Health Education and Welfare, Public Health Service, Health Statistics, 'Dental Care, Volume of Visits,' p.3.

may indicate that people in smaller communities do not visit a dentist until it is too late for restorative treatment. Here again the variation in utilization is probably caused by the serious shortage of personnel. In Saskatchewan in 1960, there were 2,858 people for every dentist in the five cities with populations of over 10,000; but there were 8,899 people for each dentist in the remaining areas of the province.

Table V - 3 UTILIZATION RATE OF DENTAL SERVICES PER 1,000 PUBLIC ASSISTANCE BENEFICIARIES, BY TYPE OF SERVICE AND RESIDENCE, 1959-1960.

Type of Service	Place of Residence				All Residences
	City	Town	Village	Rural	
Fillings	274	140	189	161	197
Extractions	234	254	259	334	273
Dentures	80	69	58	59	67
All services	589	462	506	554	538

SOURCE: Saskatchewan, Department of Public Health, Medical Services Division, Statistical Tables, Fiscal year ending March 31, 1960, Table D5.

(d) EDUCATIONAL LEVEL

V-10 In its publication, Dental Care, Volume of Visits, the U.S. National Health Survey reported "that among lower income families, the rate of dental visits was approximately twice as high for those whose family head had 9 or more years of school as for those whose head had less education."⁽¹⁾ In the upper income families, the more educated group averaged 40 per cent more visits than the less educated group.

V-11 These findings have been corroborated in a study prepared for the Survey of Dentistry⁽²⁾. The following two tables from this

(1) Ibid, p. 6.

(2) Kriesburg, L. and Treiman, B.R., 'Socio-Economic Status and the Utilization of Dentists' Services', Journal of the American College of Dentists, September 1960, pp. 191-96.

study show education and income, separately and together are very highly associated both with going to the dentist preventively and with not going to the dentist when dental work is thought to be necessary.

Table V.4. PER CENT GOING TO DENTIST PREVENTIVELY BY INCOME AND BY EDUCATION

Education	INCOME			
	Under \$2,000 %	\$2,000 - 4,999 %	\$5,000 - 7,499 %	\$7,500 and over %
Grade school	8	12	25	33
High school	15	26	44	42
College	50	52	53	70

SOURCE: Kriesburg, L. and Treiman, B.R., 'Socio-Economic Status and the Utilization of Dentists' Services', Journal of the American College of Dentists, September 1960, Table 1.

Table V.5. PER CENT NOT GOING TO DENTIST WHEN DENTAL WORK NEEDED, BY INCOME AND EDUCATION

Education	INCOME			
	Under \$2,000 %	\$2,000 - 4,999 %	\$5,000 - 7,499 %	\$7,500 and over %
Grade school	53	36	31	9
High school	28	19	14	9
College	10	10	12	2

SOURCE: Kriesburg, L. and Treiman, B.R., 'Socio-Economic Status and the Utilization of Dentists' Services', Journal of the American College of Dentists, September 1960, Table 2.

(e) CHILDHOOD TRAINING

V-12

As a result of their survey, Kriesburg and Treiman stated that "persons who first went to the dentist when they were young are much more likely to go to the dentist preventively than are persons who did not go to the dentist when they were young."⁽¹⁾

(1) Ibid., p.6.

They concluded:

"Constraints such as lack of money seem particularly important for not going to the dentist when dental work is needed; childhood habits, ideas about teeth and their care, and relationship to the dentist seem particularly important for going to the dentist preventively. . . . Information about teeth and even beliefs about their care and values about teeth are apparently less significant factors affecting utilization than are early childhood training."⁽¹⁾

(f) OTHER FACTORS

V-13

The Dentists' Supply Company of York, Pennsylvania is running a pilot plan for prepaid dental care for their employees. For this group economic deterrents have been minimized; the beneficiaries live in an urban area in a region which receives the most dental care per capita in the United States; dentists are available and, by occupation, Dentists' Supply Company employees are very conscious of the need for regular dental visits. Yet in the first year of operation only one half of all those eligible under the plan received any dental care. It seems that there are further factors influencing the demand for services.

V-14

A 1955 National Opinion Research Center survey, asked a representative, nation-wide sample of 1,448 people, "How is it that you don't see a dentist more often?" The following table shows the per cent of respondents for each reason.

(1) Ibid, p. 15.

Table V-6. REASONS GIVEN BY PERSONS WHO DO NOT SEE A DENTIST REGULARLY FOR NOT SEEING ONE MORE OFTEN

<u>Reason</u>	<u>Per Cent Respondents</u> %
Have false teeth or don't have any teeth	36
Teeth are all right, no need to go	27
Laziness, keep putting it off	16
Can't afford it, costs too much	14
Don't like to go, afraid	9
Too busy to go	6
Teeth so bad it isn't worthwhile	4
Dentist too far away, don't know dentist	3
Don't know	1
Other	3

SOURCE: Freidson, E. and Feldman, J. J., The Public Looks at Dental Care, Health Information Foundation, Research Series 6, p. 10.

V-15 The first two reasons indicate the person's self-diagnosis that he does not need dental care. Other important reasons are laziness, negligence, fear and lack of time. The use of a recall system might encourage those persons giving the last reasons to make a dental appointment.

•V-16 When people who felt they should have had more care than they actually did were asked the reason why they did not get the necessary care, the reasons were much the same but the emphasis was different. Here, 33 per cent gave negligence as the reason, 21 per cent mentioned fear of the dentist and 12 per cent said they did not have the time.⁽¹⁾

V-17 The discrepancy between the number of people advocating regular dental visits and those actually making them is notable.⁽²⁾

(g) SUMMARY

V-18 A paper presented in 1959 to a conference of American

(1) Freidson, E. and Feldman, J. J., The Public Looks at Dental Care, Health Information Foundation Research Series 6, p. 12.

(2) Ibid, p. 4-5.

dental directors set forth factors influencing people to seek periodic care.

"An individual, in order to take a voluntary health action, must have a readiness to act. This readiness for action is defined in the following way:

(1) the individual must feel susceptible to the illness or disease;

(2) he must believe that should he become afflicted by the illness or disease, such affliction would have serious consequences for him;

(3) he must believe that the need to take such action is more important than a variety of other things he might do; and

(4) he must see that there are actions which he can take which will be of benefit for either preventing or alleviating the seriousness of the illness, and that such actions in themselves do not cause greater disability than the illness itself."⁽¹⁾

V-19

In dealing with the first of these four points the same author has said, "It seems impossible for anyone to believe that dental problems cannot happen to him, for in most cases such problems have already occurred."⁽²⁾ It appears however, that although most people would feel susceptible to dental disease, few believe that it could have a truly serious consequence for them. The majority do not believe the need for periodic care is greater than other needs or wants competing for their time and

(1) Kegeles, S.S., 'An Interpretation of Some Behavioral Principles in Relation to Acceptance of Dental Care', Proceedings of the 1959 Biennial Conference of State and Territorial Dental Directors with the Public Health Service and the Children's Bureau, p.21.

(2) Kegeles, S.S., 'Why People Seek Dental Care: A Review of Present Knowledge', American Journal of Public Health, September, 1961, p.1308.

money. Though they say that periodic care is a good idea they are also prevented from obtaining this care by factors such as fear and the unavailability of dentists in their area.

DENTAL RESOURCES

(a) DENTISTS IN CANADA, 1901-1961.

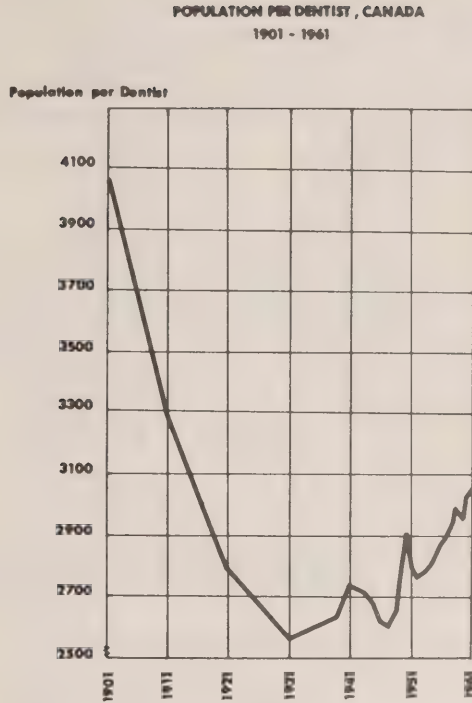
VI. 1. A review of dentist/population ratios since the turn of the century reveals that the supply of dentists in relation to the population improved greatly between 1901 and 1931. From 1931 on, however, it has decreased. A peak was reached in 1950 when there were 2906 people for each dentist. Conditions improved as the large post-war dental classes graduated, but the ratio has risen steadily since 1952. The current ratio is about on a par with that reached in the middle of the 1911 to 1921 decade.

Table VI. 1. NUMBER OF DENTISTS AND POPULATION PER DENTIST 1901-1961.

Year	Number of Dentists	Population per Dentist
1901	1,310	4,064
1911	2,183	3,294
1921	3,158	2,779
1931	4,039	2,566
1941	4,210	2,729
1951	4,912	2,792
1961	5,865	3,037

SOURCE: Census of Canada, 1901, 1921, 1931, 1941; Department of National Health and Welfare, Survey of Dentists in Canada, 1949; Canadian Dental Association, Statistical Data re Dental Personnel, 1951; Bureau of Economic Research, 'Dental Personnel in Canada 1961', Journal of the Canadian Dental Association, April 1961.

Figure VI-1.



(b) COMPARISONS WITH OTHER COUNTRIES

VI. 2. Comparing Canada's current dentist/population ratio with that of the United States (1:1900) emphasizes the shortage of personnel in this country.

VI. 3. Of 16 European countries for which recent ratios are available, ten have more favourable ratios than Canada's while six have worse ratios.

Table VI.2. POPULATION PER DENTIST, EUROPEAN COUNTRIES, 1956-1958

<u>C ountry</u>	<u>Population Per Dentist</u>
Austria	1,800
Belgium	7,000
Denmark	2,100
Finland	2,600
France	3,000
Germany	1,700
Greece	3,000
Italy	5,500
Luxembourg	2,700
Netherlands	4,400
Norway	1,700
Portugal	71,300
Spain	10,700
Sweden	1,600
Switzerland	2,400
United Kingdom	3,900
Canada	3,000
United States	1,900

SOURCE: American Dental Association, Number of Dentists in Countries of the World.

(c) PROVINCIAL DISTRIBUTION OF DENTISTS

VI.4. Dentist/population ratios differ greatly among the ten provinces, from 1:2,423 for Ontario to 1:10,929 for Newfoundland.

Table VI.3. NUMBER OF DENTISTS AND POPULATION PER DENTIST, BY PROVINCE, 1961

<u>Province</u>	<u>Number of Dentists</u>	<u>Population per Dentist</u>
Newfoundland	42	10,929
Prince Edward Island	31	3,323
Nova Scotia	196	3,689
New Brunswick	120	5,000
Quebec	1,388	3,679
Ontario	2,513	2,423
Manitoba	286	3,143
Saskatchewan	196	4,643
Alberta	431	2,977
British Columbia	662	2,426
Canada	5,865	3,037

SOURCE: Bureau of Economic Research, 'Dental Personnel in Canada, 1961', Journal of the Canadian Dental Association, April, 1961.

VI.5. Newfoundland, however, is the only province which has experienced a greater proportional increase in dentists than in population during the last ten years. In the period 1938-1961, only Alberta's dental resources have kept ahead of the growth in population.

Table VI.4. ABSOLUTE INCREASE IN DENTISTS AND PER CENT INCREASE IN DENTISTS AND POPULATION, BY PROVINCE 1938-1961 and 1951-1961

Province	Increase since 1938			Increase since 1951		
	Dentists	Dentists	Pop.	Dentists	Dentists	Pop.
	No.	%	%	No.	%	%
Newfoundland	23*	121.1	NA	21	100.0	30.8
Prince Edward Island	1	3.3	10.8	1	3.3	7.3
Nova Scotia	27	16.0	31.7	4	2.1	13.3
New Brunswick	10	9.1	37.3	14	13.2	17.2
Quebec	514	58.8	62.6	241	21.0	28.6
Ontario	581	30.1	67.4	410	19.5	36.2
Manitoba	35	13.9	25.7	27	10.4	17.1
Saskatchewan	-14	-6.7	-1.3	-21	-9.7	9.2
Alberta	195	82.6	65.3	110	34.3	40.5
British Columbia	300	82.9	111.6	146	28.3	41.2
Canada	1,672	39.9	61.3	953	19.4	29.9

SOURCE: Bureau of Economic Research, 'Dental Personnel in Canada, 1961',
Journal of the Canadian Dental Association, April 1961; Dominion
Bureau of Statistics, Estimated Population of Canada by Provinces.

(d) URBAN-RURAL DISTRIBUTION OF DENTISTS

VI. 6. There is an even greater disparity between dentist/
population ratios in urban and rural areas. In Canada as a
whole, the ratio is three times as bad in rural areas as in urban
areas. This varies from British Columbia where there are
twice as many people per dentist in rural areas, to Newfoundland
where there are ten times as many people to every rural dentist
as to every urban dentist.

Table VI. 5. POPULATION PER DENTIST, BY SIZE OF
COMMUNITY AND PROVINCE 1960

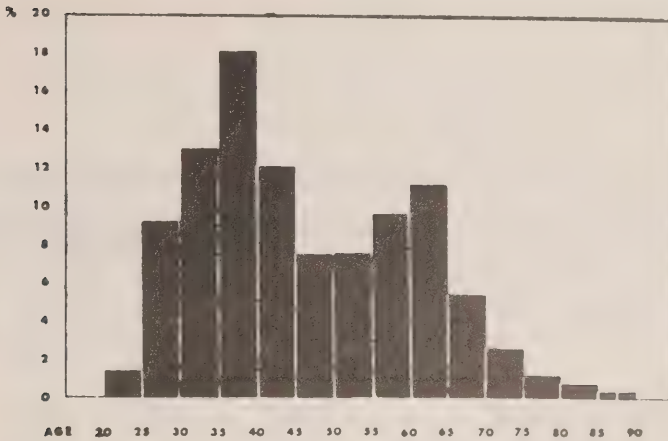
Province	Communities		Ratio of Column B to Column A
	under 10,000	over 10,000	
	A	B	C
Newfoundland	30,859	3,424	1:9
P.E.I.	5,304	902	1:6
Nova Scotia	5,146	2,693	1:2
New Brunswick	8,604	2,682	1:3
Quebec	7,828	2,538	1:3
Ontario	4,136	1,956	1:2
Manitoba	9,145	2,041	1:4
Saskatchewan	8,411	2,046	1:4
Alberta	7,167	1,790	1:4
British Columbia	3,920	1,933	1:2
Canada	6,061	2,119	1:3

SOURCE: Bureau of Economic Research, 'Distri-
bution of Dentists in Urban and Rural
Areas of Canada, 1960', Journal of the
Canadian Dental Association, September 1960.

(e) DISTRIBUTION OF DENTISTS BY AGE

VI. 7. The unevenness of the age distribution of Canadian dentists
results not only from trends affecting the entire population but
also from factors influencing the number graduating from dentistry
at particular periods.

Figure VI.2. PERCENT OF DENTISTS BY 5 YEAR AGE GROUP, CANADA, 1960



SOURCE: Bureau of Economic Research, 'The Ages of Canadian Dentists, 1960', Journal of the Canadian Dental Association, June 1960.

VI.8. A considerable number of dentists were born between 1895 and 1900. They formed the large graduating classes of the early twenties. A lesser number were born between 1905 and 1915. For many people born in this period, the depression years made impossible the expense of a dental education. A large group was born between 1920 and 1925; they formed the post-Second World War boom classes.

Table VI.6. MEDIAN AGE OF CANADIAN DENTISTS, BY PROVINCE AND SIZE OF COMMUNITY, 1960.

Province	Dentists in Communities		All Dentists
	under 10,000	over 10,000	
Newfoundland	38	33	34
P.E.I.	39	40	40
Nova Scotia	41	42	41
New Brunswick	39	44	42
Quebec	48	42	43
Ontario	46	44	45
Manitoba	53	42	46
Saskatchewan	41	50	49
Alberta	55	44	46
British Columbia	55	50	53
Canada	44	43	43

SOURCE: Bureau of Economic Research, 'The Ages of Canadian Dentists, 1960', Journal of the Canadian Dental Association, June 1960.

Table VI-7 PER CENT OF DENTISTS BY 5 YEAR

Province	Ages of 1		
	under 25	25- 29	30- 34
	%	%	%
Newfoundland	3.3	23.3	23.4
Prince Edward Island	---	6.0	9.1
Nova Scotia	1.0	4.4	9.3
New Brunswick	---	5.4	13.6
Quebec	.5	8.8	15.3
Ontario	2.0	10.9	12.6
Manitoba	1.8	8.6	7.8
Saskatchewan	1.1	4.2	16.1
Alberta	2.6	11.6	11.5
British Columbia	.1	6.6	11.9
Canada	1.4	9.2	13.0

SOURCE: Bureau of Economic Research, 'The Ages of Canadian Dentists, 1960', Journal of the Canadian Dental Association, June, 1960.

AGE GROUP, BY PROVINCE, 1960.

Dentists, December 31, 1959							
	35- 39	40- 44	45 - 49	50- 54	55- 59	60- 64	65 & over
	%	%	%	%	%	%	%
	23.3	6.7	3.3	6.7	---	6.6	3.4
	15.2	6.0	9.1	9.1	18.2	12.1	15.2
	17.5	15.3	6.0	9.8	7.1	12.1	17.5
	18.2	10.9	8.2	8.2	10.9	11.8	12.8
	17.1	12.4	8.6	7.5	12.1	10.7	7.0
	16.2	10.9	7.1	7.3	10.2	12.5	10.3
	16.1	11.2	4.8	10.1	6.0	13.0	20.6
	14.3	13.1	7.7	10.1	6.0	13.1	14.3
	24.1	12.9	8.3	7.5	4.8	8.6	8.1
	25.8	15.5	7.7	6.1	9.3	7.4	9.6
	18.1	12.1	7.5	7.6	9.7	11.2	10.2

(f) IMMIGRATION AND EMIGRATION OF DENTISTS

VI.9. According to the Department of Citizenship and Immigration, 154 people giving their intended occupation as "dentist" entered Canada between 1957 and 1960. During the same period, 73 Canadian dentists left this country.

VI.10 Even if all the "intended dentists" actually obtained licenses to practise in Canada the net gain would be only about 20 dentists a year.

(g) WOMEN DENTISTS

VI.11 Only 88 or 1.5 per cent of Canada's dentists are women. The provincial distribution is given in the following table.

Table VI.8. WOMEN DENTISTS REGISTERED IN CANADA, BY PROVINCE, 1961

<u>Province</u>	<u>Women Dentists</u>
Newfoundland	2
Prince Edward Island	0
Nova Scotia	3
New Brunswick	1
Quebec	10
Ontario	52
Manitoba	1
Saskatchewan	2
Alberta	6
British Columbia	11
Canada	88

SOURCE: Bureau of Economic Research, 'Dental Personnel in Canada, 1961', Journal of the Canadian Dental Association, April, 1961.

(h) SPECIALISTS

VI.12 There are 219 dentists in the four specialities recognized by the Canadian Dental Association - 116 orthodontists, 61 oral surgeons, 23 periodontists, and 19 paedodontists. The serious shortage of specialists particularly on a provincial basis is apparent below.

Table VI. 9. NUMBER OF FULL-TIME DENTAL SPECIALISTS BY PROVINCE, 1961

Province	Speciality				Total
	Orthodontics	Oral Surgery	Periodontics	Paedodontics	
Newfoundland	0	0	0	0	0
Prince Edward Is.	0	0	0	0	0
Nova Scotia	4	1	0	0	5
New Brunswick	1	0	0	0	1
Quebec	26	8	4	0	38
Ontario	61	35	14	6	116
Manitoba	5	5	1	2	13
Saskatchewan	2	0	0	0	2
Alberta	8	5	1	3	17
British Columbia	9	7	3	8	27
Canada	116	61	23	19	219

(i) SALARIED DENTISTS

VI. 13. In 1961, 215 dentists were employed full-time in hospital, school dental, and public health services and in dental schools. In addition, 146 dentists worked half-time for these services.

VI. 14. Three federal health departments employ dentists.

(i) Department of National Defence

VI. 15. The Royal Canadian Dental Corps has a staff of 156 dentists:

- 14 administrative
- 2 administrative, teaching and clinical
- 3 clinical and teaching
- 1 teaching
- and 136 clinical.

They are responsible for the dental care of the members of all three military services.

(ii) Department of Veterans' Affairs

VI. 16. This department employs 36 dentists only one of whom occupies a strictly administrative position. The department provides comprehensive dental care for pensioned veterans, War Veterans' Allowance recipients and members of the Royal Canadian Mounted Police. Services are provided in D. V. A. hospitals or, where these are not available, the services of private dentists are employed on a fee-for-service basis.

(iii) National Health and Welfare

Of the 21 dentists employed, there are:

- 3 administrative
- 5 administrative - clinical
- and 13 clinical dentists.

Table VI. 10. DENTISTS EMPLOYED IN HEALTH SERVICES, 1961

	Nfld	P.E.I.	N.S.	N.B.	P.Q.	Ont	Man	Sask	Alta	B.C.	Total
Dental Schools											
Full-Time	0	0	5	0	17	15	6	0	7	0	50
Half-Time	0	0	0	0	8	6	3	0	2	0	19
Hospital Service											
Full-Time	1	0	3	2	6	19	1	2	3	7	44
Half-Time	0	0	0	0	40	4	0	0	0	9	53
School Dental Service											
Full-Time	0	0	1	3	15	30	3	0	3	1	56
Half-Time	0	0	2	1	5	57	2	1	5	0	73
Public Health Service											
Full-Time	2	2	2	2	12	10	4	1	3	27	65
Half-Time	0	0	0	0	0	0	0	0	0	1	1
Total											
Full-Time	3	2	11	7	50	74	14	3	16	35	215
Half-Time	0	0	2	1	53	67	5	1	7	10	146

PRIVATE DENTAL PRACTICE

(a) THE ECONOMICS OF PRACTICE

VII-1 In 1958, the average gross income of Canadian dentists in private practice was \$19,765. Gross incomes varied considerably among the provinces. These differences do not seem to be the result of differences in the number of patient appointments; expenses and fees show more variation among the provinces than do sittings.

Table VII - 1 AVERAGE GROSS AND NET INCOMES OF DENTISTS, BY PROVINCE, 1958.

Province	Average Income	
	Gross	Net
	\$	\$
Newfoundland	18,745	9,100
Prince Edward Island	11,354	6,369
Nova Scotia	16,501	8,681
New Brunswick	18,440	9,732
Quebec	16,299	8,475
Ontario	20,125	10,913
Manitoba	19,716	10,279
Saskatchewan	24,397	11,522
Alberta	20,138	10,820
British Columbia	23,081	11,855
Canada	19,765	10,453

SOURCE: Canadian Dental Association, Survey of Dental Practice, 1958, p. 2.

VII-2 The average net income of Canadian dentists was \$10,453 in 1958. This compared to an average income of \$7,529 for salaried dentists. Net income increased steadily with city size up to cities of 100,000 population. In cities this size, the average net income was double that in communities of under 1,000 population.

VII-3 Income also varied with age. Net income drops off noticeably after age 50. From 30 to 50 years both net and gross incomes are at their highest. The fall in income after age 50 would seem to be the result of a decline in productivity rather than in a shortening of the work week. Gross income falls sharply while the number

of hours worked tapers off gradually.

Table VII-2 AVERAGE NET INCOME OF NON-SALARIED DENTISTS, BY CITY SIZE, 1958.

Size of City	Average Net Income
	\$
under 1,000	5,794
1,000 - 2,500	6,663
2,500 - 5,000	8,079
5,000 - 10,000	9,671
10,000 - 25,000	10,750
25,000 - 50,000	11,192
50,000 - 100,000	11,789
100,000 - 250,000	11,533
250,000 - 500,000	11,415
500,000 - and over	10,294

SOURCE: Canadian Dental Association, Survey of Dental Practice, 1958, p. 4.

Table VII - 3 AVERAGE NET INCOME OF NON-SALARIED DENTISTS, BY AGE, 1958.

Age Group	Average Net Income
	\$
under 25	2,639
25 - 29	8,506
30 - 34	12,167
35 - 39	12,098
40 - 44	11,666
45 - 49	12,044
50 - 54	10,701
55 - 59	9,888
60 - 64	7,526
65 - 69	6,515
70 - 74	4,912
75 +	1,402

SOURCE: Canadian Dental Association, Survey of Dental Practice, 1958, p. 5.

Table VII - 4 PER CENT OF AVERAGE PRACTICE EXPENSES, BY ITEM OF EXPENSE, 1958.

Item	Per Cent
	%
lab. expenses	24.8
salaries	22.2
dental supplies	18.1
office rent	12.3
depreciation	6.7
utilities	3.5
insurance	1.5
other	10.9

SOURCE: Canadian Dental Association, Survey of Dental Practice, 1958, p. 12.

COMPARATIVE CHANGES IN AVERAGE GROSS INCOME

AND AVERAGE OFFICE HOURS PER WEEK

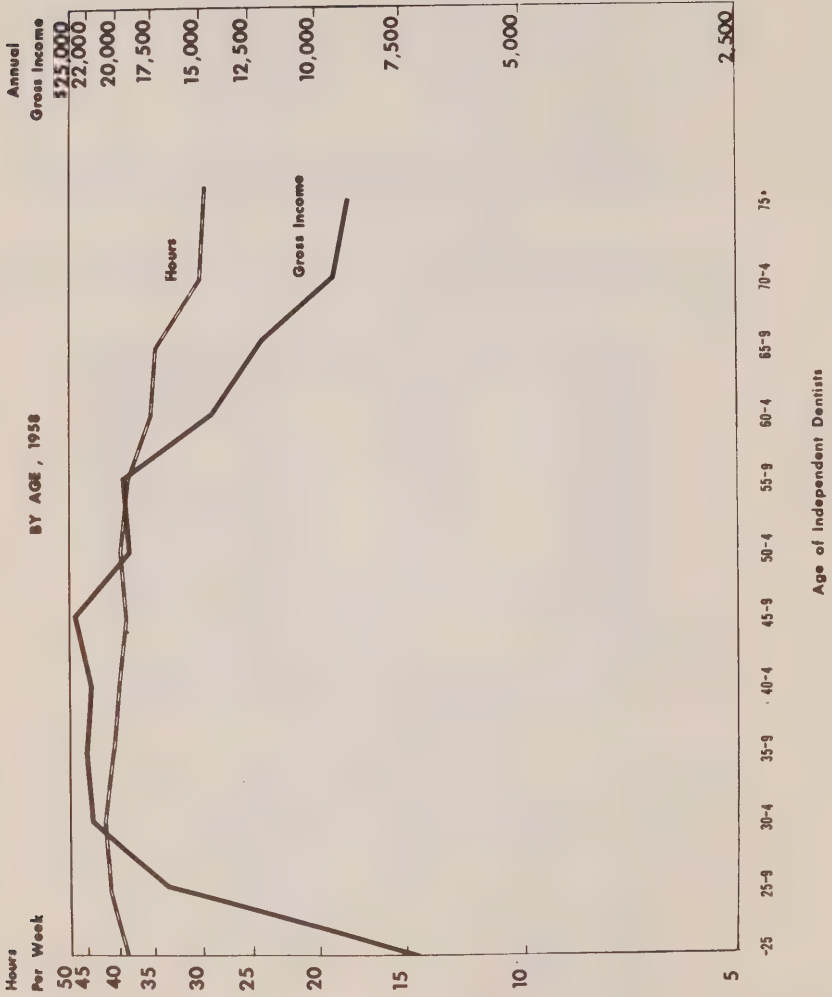


FIGURE VII-1

VII-4 Between 40 and 50 per cent of a dentist's gross income is expenses. The largest items of expense are laboratory charges, salaries, dental supplies and rent.

VII-5 Incomes of specialists are higher than those of general practitioners. The highest paid specialist is the orthodontist with an average net income of \$17,190.

Table VII - 5 AVERAGE NET INCOME BY TYPE OF DENTIST, 1958.

Type of Dentist	Average Net Income
	\$
general practitioner	10,114
oral surgeon	14,683
orthodontist	17,190
paedodontist	13,958
periodontist	11,725
other	12,229

SOURCE: Canadian Dental Association, Survey of Dental Practice, 1958, p. 9.

(b) EMPLOYMENT OF AUXILIARIES

VII-6 In 1958, 87 per cent of all dentists employed some type of either full-time or part-time help. This was an increase of six percentage points over the 1953 figure.

VII-7 Only 12 per cent of the dentists had two employees. Sixty-seven per cent had one full-time employee (71 per cent of these were dental assistants) and 21 per cent had either no help or only part-time assistance. Dentists in the eastern part of the country are more likely to have no assistants than are those in the western provinces.

VII-8 If gross income is taken as a measure of productivity, the dentist with between 2.5 and 3.4 employees gave almost two and one-half times as many treatment services as the dentist working alone. It is estimated that in 1958 the use of auxiliaries raised productivity 77 per cent higher than it would have been had all dentists worked alone (1)

(1) Bureau of Economic Research, "The Relationship of Dental Auxiliaries to Increased Productivity and Income," Journal of the Canadian Dental Association, July, 1961, p. 446.

Table VII - 6 PERCENTAGE DISTRIBUTION OF DENTISTS
BY NUMBER OF EMPLOYEES PER DENTIST, BY PROVINCE,
1958.

Province	Number of Employees			
	None	One	Two	Part-Time
	%	%	%	%
Newfoundland	4.2	83.3	8.3	4.2
Prince Edward Island	45.5	54.5	---	--
Nova Scotia	24.6	60.0	6.2	9.2
New Brunswick	21.6	62.1	10.9	5.4
Quebec	27.6	54.0	10.7	7.7
Ontario	11.6	69.0	10.9	8.5
Manitoba	3.8	65.0	17.0	14.2
Saskatchewan	8.7	70.9	10.7	9.7
Alberta	5.1	74.8	11.9	8.2
British Columbia	2.9	74.4	15.5	7.2
Canada	12.9	67.2	11.6	8.3

SOURCE: Canadian Dental Association, Survey of Dental Practice, 1958, p. 10.

(c) PRACTICE TIME

VII-9 Fifty-seven per cent of practising dentists have 30 minute appointments: 31 per cent work on the basis of 45 minute appointments.

VII-10 The average dentist works 46 - 47 weeks a year for an average of 41 hours a week. Thirty-four of these hours are spent at the chairside.⁽¹⁾

(d) PATIENTS, SITTINGS, AND CAPACITY

VII-11 The average Canadian dentist saw 1000 patients during 1958 and had 2509 appointments - an average of 2.51 sittings per patient.

VII-12 Forty-four per cent of all practising dentists have one chair offices. Forty-eight per cent have two chairs.⁽²⁾

(1) Canadian Dental Association Survey of Dental Practice, 1958, p. 9.

(2) Ibid., p. 7.

Table VII-7 AVERAGE NUMBER OF PATIENTS AND
SITTINGS PER DENTIST AND AVERAGE NUMBER OF SITTINGS
PER PATIENT, BY PROVINCE, 1958.

Province	Patients per Dentist	Sittings per Dentist	Sittings per Patient
Newfoundland	951	2705	2.84
Nova Scotia	429	1602	3.73
Prince Edward Island	928	2644	2.85
New Brunswick	1169	2687	2.30
Quebec	1037	2118	2.04
Ontario	972	2665	2.74
Manitoba	918	2164	2.36
Saskatchewan	1378	2657	1.93
Alberta	1158	2508	2.16
British Columbia	846	2559	3.02
Canada	1000	2509	2.51

SOURCE: Canadian Dental Association, Survey of Dental
Practice, 1958, p. 13.

AUXILIARY PERSONNEL

VIII. 1. A World Health Organization report has stated, "Trained auxiliary personnel provide the dentist with assistance that will relieve his own hands and his own time so that he may devote himself more fully to performing those professional services which specifically require his special skills and knowledge and which could not be executed safely by one with less experience and education."⁽¹⁾

VIII. 2. In Canada, there are four types of auxiliary personnel:

assistants
secretaries
hygienists
technicians

The number and types of auxiliaries used in a dental office depends upon the size and character of the practice.

(a) DENTAL ASSISTANTS

VIII. 3. Sixty-eight per cent of the dentists in Canada employ either full-time or part-time dental assistants. It is estimated that in Canada at the present time there are approximately 3,500 full-time and 500 part-time assistants.

VIII. 4. When only a dental assistant is employed in an office, she assumes the responsibilities of the dental secretary and performs a wide spectrum of duties ranging from receptionist and secretarial work to chairside assisting and minor cleaning.

VIII. 5. The average weekly salary paid these women is \$49.28.⁽²⁾
In most cases, they do not receive fringe or incentive benefits.

(1) World Health Organization, Technical Report Series, No. 163, Expert Committee on Auxiliary Dental Personnel, p. 7.

(2) McCutcheon, J. 'Manpower in Dentistry - The Dental Assistant', Journal of the Canadian Dental Association, Vol. 27, No. 1, 1961, p. 11.

(b) DENTAL SECRETARIES

VIII.6. There are approximately 1,200 women working as dental secretaries. Twenty-two per cent of all dentists have a secretary or receptionist. Eight per cent of dentists employ both an assistant and a secretary. In these offices, the dental

Table VIII. 1. DUTIES PERFORMED BY DENTAL ASSISTANTS IN CANADA

<u>Duty</u>	<u>Per Cent Performing %</u>
greeting patients	97
telephone answering	95
general chairside assisting	96
passing instruments	83
mixing cements	93
mixing of amalgam	94
preparation of impression materials	80
preparation of operation room	85
preparation of bracket table	90
seating patient	98
instrument sterilization	99
writing up charts	61
maintenance of office records	88
bookkeeping	75
banking	70
billing	84
minor laboratory procedures	68
arranging appointments	95
operating recall system	84
minor cleaning	95
major cleaning	39
running messages	74
ordering supplies	94
typing letters	73
paying office bills	73
care of instruments	97
laundry arrangements	87

SOURCE: McCutcheon, J., 'Manpower in Dentistry - The Dental Assistant', Journal of the Canadian Dental Association, Vol. 27, No. 1, 1961, p. 11.

assistant can devote almost all her time to chairside assisting.

The dental secretary assumes responsibility for typing, bookkeeping, billing, maintaining office records, answering the telephone, making appointments and operating the recall system. She also acts as a receptionist.

(c) DENTAL HYGIENISTS

- VIII.7. Hygienists are graduates of approved Canadian and American courses in dental hygiene and are registered and licensed to practise under the supervision of a dentist. All provinces have the broad legislation required to make the services of these women possible, but some provinces have not developed the necessary regulatory provisions.
- VIII.8. The first Canadian course for dental hygienists was established at the University of Toronto in 1951. The University of Alberta and Dalhousie University began such programs in September, 1961 and Manitoba intends to initiate its program as soon as possible. All three schools operate two year diploma courses.
- VIII.9. The dental hygienist is trained to perform prophylaxes, apply topical fluorides, render first aid, take and develop X-rays, and act as a dental health educator. From the beginning, the intention has been that her training should enable her to render services of a preventive and educational nature.
- VIII.10. A recent article on this subject notes the broadening of hygienists' (or auxiliaries') services engendered by acts passed in Manitoba and Alberta:
- "In Manitoba, The Dental Association Act... makes provisions for an addition to the recognized procedures: 'taking of impressions of the mouth from which artificial dentures can be made, determining and recording the relationship of one jaw to another and repairing minor cracks in artificial dentures and replacement of broken or lost teeth in artificial dentures'."(1)

(1) Dunn, W.J., 'Manpower in Dentistry - The Dental Hygienist', Journal of the Canadian Dental Association, Vol. 27, No. 1, 1961. p. 19.

"The Dental Auxiliaries' Act (Alberta) makes possible the employment of dental auxiliaries in health unit centres where, under the supervision and direction of a dentist, such personnel will be permitted to perform services beyond the present scope of dental hygienists but not to involve operating on any oral tissue." (1)

VIII.11. On January 1, 1961, there were 74 dental hygienists practising in Canada. Forty-eight of these were located in Ontario.

Table VIII.2. DENTAL HYGIENISTS, 1961

<u>Province</u>	<u>Number Practising</u>
Newfoundland	0
Prince Edward Island	2
Nova Scotia	5
New Brunswick	0
Quebec	0
Ontario	48
Manitoba	2
Saskatchewan	10
Alberta	3
British Columbia	4
Canada	74

SOURCE: Bureau of Economic Research,
'Dental Personnel in Canada, 1961',
Journal of the Canadian Dental
Association, April 1961, p. 244

(d) DENTAL TECHNICIANS

VIII.12. The main function of the dental technician is to perform some or all of the extra oral procedures associated with the fabrication of dental prosthetic appliances. In 1951, there was one technician for every three dentists in Canada. If a similar ratio applied today, there would be between 1,900 and 2,000 technicians in the whole of Canada. Reasonably accurate estimates indicate that there are at least 1,700.

(1) Ibid., p.20.

Table VIII. 3. RATIO OF DENTAL TECHNICIANS TO DENTISTS, BY PROVINCE, 1951

<u>Province</u>	<u>Ratio</u>
Newfoundland	1/1.06
Prince Edward Island	1/4.67
Nova Scotia	1/3.58
New Brunswick	1/2.85
Quebec	1/2.54
Ontario	1/3.76
Manitoba	1/2.25
Saskatchewan	1/4.06
Alberta	1/2.09
British Columbia	1/2.54
Canada	1/3.05

SOURCE: Census of Canada, 1951,
Volume IV.

VIII. 13 British Columbia, Alberta, Saskatchewan, Ontario, Quebec and New Brunswick have legislation establishing governing boards of dental technicians which determine the criteria for registration and register and license dental technicians. In all provinces except Alberta, technicians must work according to prescriptions and under the supervision of the fully-qualified dentist. However, much illegal practise is carried on by technicians working directly for the public. In several provinces technicians have attempted to gain the right to deal directly with the public and in three they have at times possessed this right.

Table VIII. 4. ESTIMATED NUMBER OF TECHNICIANS, BY PROVINCE, 1961

<u>Province</u>	<u>Technicians</u>
British Columbia	206
Alberta	108
Saskatchewan	60
Manitoba	106
Ontario	750
Quebec	396
Nova Scotia	35
Prince Edward Island	3
New Brunswick	30
Newfoundland	16
Total	1,710

VIII. 14.

In British Columbia, Division 10 of the General Regulation pursuant to the Dental Technicians' Act passed in 1960 permitted the Board of Examiners to grant dental technicians senior grade special licenses to make, repair, rebase and furnish full upper and lower dentures for the public, providing the technician had a minimum of twelve years' experience, seven of which had been spent in illegal practice. No technician was to be granted a special licence after September 15, 1960. In April 1961, Justice McInnes of the Supreme Court of British Columbia declared Division 10 ultra vires because its provisions were discriminatory, contrary to public policy, and went beyond the powers of the Board of Examiners.

VIII. 15.

The Alberta legislature passed the Certified Dental Mechanics Act in 1961. This act grants technicians the right to make and fit dentures for the public.

VIII. 16.

In 1959, the Saskatchewan legislature passed an act whereby technicians could work directly for the public providing the patient could supply a certificate of oral health. This act was revoked in 1960.

DENTISTS NECESSARY TO MAINTAIN AND IMPROVE THE DENTIST/POPULATION RATIO

- IX.1. The optimal dentist/population ratio is difficult to assess. The average Canadian dentist sees 1,000 patients a year, but this does not mean that each of the 1,000 patients has received the complete dental care he requires. The frequently mentioned discrepancy between the need and demand for dental services further complicates the problem. Virtually 100 per cent of the population may "need" dental care within the year, but it is unlikely that more than 50 per cent will "demand" it.
- IX.2. One way of determining Canada's need for dentists in the next two decades is to estimate how many dentists would be required to equal certain actual 1961 ratios:
- (i) the ratio for Canada as a whole: 1/3037;
 - (ii) the best provincial ratio - i.e. Ontario: 1/2423;
 - (iii) the ratio for the United States: 1/1900.
- IX.3. Low and high estimates of the population have been calculated on the basis of projections prepared for the Royal Commission on Canada's Economic Prospects.

Table IX.1. POPULATION ESTIMATES FOR CANADA, 1960-1980

Year	Estimate	
	Low*	High**
1960	17,370,000	17,814,000
1965	19,220,000	20,004,000
1970	21,160,000	22,356,000
1975	23,310,000	24,899,000
1980	25,770,000	27,786,000

* The low estimates are those prepared for the Gordon Commission on Canada's Economic Prospects.

** The high estimates of the Gordon Commission have been increased proportionally to the difference between the Commission's 1960 high estimate of 17,650,000 and the Dominion Bureau of Statistics' estimate of population in 1960, 17,814,000.

IX.4. Canada now has approximately 6,000 dentists. To maintain the present ratio, Canada will need between 8,500 and 9,100 dentists by 1980. For the whole country to reach the ratio which now exists in Ontario, 10,600 to 11,500 dentists would be necessary and to attain a ratio comparable to that of the United States 13,600 - 14,600 dentists would be required.

Table IX.2. DENTISTS NECESSARY TO MAINTAIN AND IMPROVE DENTIST/POPULATION RATIO

Desired Ratio	Year	Number of Dentists Required	
		Low Estimate Population	High Estimate Population
1/3,037	1965	6,300	6,600
	1970	7,000	7,400
	1975	7,700	8,200
	1980	8,500	9,100
1/2,423	1965	7,900	8,300
	1970	8,700	9,200
	1975	9,600	10,300
	1980	10,600	11,500
1/1,900	1965	10,100	10,500
	1970	11,100	11,800
	1975	12,300	13,100
	1980	13,600	14,600

DENTAL PUBLIC HEALTH PROGRAMS

(a) GOVERNMENT PROGRAMS

(i) National Programs

X-1 At the national level, the Division of Dental Health was established within the Department of National Health and Welfare in 1945. Among this Division's many dental public health activities is its program of dental public health research. A major contribution in this regard has been its careful and continuing statistical evaluation of the results of fluoridation. Its Brantford Fluoridation Caries Studies which compare the tooth decay experience of native Brantford children with children in Sarnia and Stratford have been internationally recognized. The division has carried out research on the effectiveness of topical fluorides and the epidemiology of gingival disease among children. For two years, it operated a pilot-model of a preventive industrial dental clinic.

X-2 The department produces a number of dental health publications, films, filmstrips, and other dental health education materials, including a newsletter. These are in use in all ten provinces.

X-3 Through National Health Grants, dental research, dental care programs for children and post-graduate training of dentists in public health are aided in all ten provinces.

X-4 Dental care for Indians and Eskimos is provided directly through the department's Indian and Northern Health Services Directorate which employs a staff of dentists on salary.

(ii) Provincial and Municipal Programs

X-5 At the provincial and municipal levels, many preventive and treatment programs exist. "School dental services were first instituted in the larger Canadian cities such as Montreal,

Toronto, Vancouver and Winnipeg as early as 1917... The first provincial health department to establish a dental health division was Ontario in 1925. However, it was not until after the inauguration of the Canadian National Health Grant program in 1948 that this pattern was extensively followed in other provinces." (1) By 1959, all ten provinces of Canada had established dental health divisions.

X-6 Dental programs vary from province to province but are for the most part directed to the care of children.

Newfoundland:

X-7 The Newfoundland Department of Health operates a dental care program which covers all school children of five, six and seven years of age in communities where dentists are available. This service covers fillings and extractions, but is primarily designed as an educational program. It is estimated that 12,000 children would have been eligible for this service in 1960 and that approximately 60 per cent availed themselves of the service.

X-8 Free dental treatment is provided to all orphans and foster children regardless of age. School children of indigent parents can also avail themselves of free dental services.

Prince Edward Island:

X-9 In urban areas of the province, needy children up to age 12 and children of all ages in orphanages are eligible to receive all necessary treatment in clinics. About 480 children received dental services under these provisions in 1960.

X-10 When available, three dental hygienists are on staff in the Department of Health. They visit schools, give talks on dental

(1) McCombie F., 'Dental Public Health in Canada, 1960', Public Health Dentistry, 21:9. 1961.

hygiene, check the mouths of children and notify parents if they find that treatment is required. The hygienists also operate clinics providing topical applications of fluoride to children between the ages of three and thirteen. At the present time, no hygienists are on staff. Two are now being trained on government grants.

- X-11 The Department of Health operates a preventive orthodontic clinic in Charlottetown for cases referred by the family dentist.

Nova Scotia:

- X-12 The province employs dental hygienists who carry out an educational program for pre-school and elementary school children in villages and small towns. These hygienists also give topical fluoride applications to children who live in areas where there is no public water supply.

- X-13 The City of Halifax employs three dentists, one full-time and two half-time, to provide a dental treatment service for school children of low income families.

New Brunswick:

- X-14 The Saint John and Moncton Boards of Health conduct free dental clinics for approximately 5,000 children of school age. The provincial government assists these programs through various grants. In certain other areas, dentists are engaged by the Department of Health to give dental treatment to children in the primary grades. This is a limited program, however, and is estimated to involve not more than 1,000 patients.

Quebec:

- X-15 Dental clinics are operated in Quebec's health units by the provincial department of health. These clinics give examinations and dental education to school children; they also provide treatment for needy children. Municipal dental clinics are operated in Montreal and Quebec.
- X-16 Dentists working for the health units give dental health education lectures to adult groups. Three regional public health dentists are organizing a more extensive program of adult education in dental public health.
- X-17 Several fluoridation surveys have been undertaken and more are now underway.

Ontario:

- X-18 Since 1938, the Division of Dental Services of the provincial government has been administering grants to school dental programs. Twenty per cent of the costs of programs in towns of over 5,000 population and 30 per cent in towns of under 5,000 (to a maximum of \$2,000 annually) are paid. The actual programs are carried out by local boards of health or school boards. Among those municipalities with school treatment programs are Toronto, Hamilton, Ottawa, London, Windsor, St. Catharines, Brantford and North York Township. Those cities with programs in operation prior to 1938 (e.g. Toronto, Hamilton, London, Kitchener, Brantford) are not eligible to receive the grants.
- X-19 Dental health education programs operate in some of the province's health units. It has been demonstrated that such programs as these contribute to the control of dental caries to a considerable degree. (1)

(1) See Appendix XII

X-20

The program operated by the Dental Services Division of the City of Toronto considers annual dental inspection of all pupils of Toronto's elementary and secondary schools to be its prime responsibility. Treatment is necessarily restricted to preschool and young school aged children who indicate that they are unable to obtain treatment from any other source. Prophylaxes, amalgam restorations, extractions, and space maintenance are included.

X-21

Federal health grants support a comprehensive orthodontic research project at Burlington and a preventive orthodontic clinic in Toronto. The Riverdale Preschool Project was initiated with similar financial support. Following the termination of the original five year demonstration, the City of Toronto authorized incorporation of this program into its regular public health activities. The city has gradually extended this carefully co-ordinated program of teaching and demonstration into the other health districts of Toronto. The scope of the program depends upon the availability of dental hygienists.

Manitoba:

X-22

This province is now organizing its dental public health program on the basis of four health regions. Each region will have a public health dentist as director of the dental public health program, an additional dentist, a hygienist and an assistant.

X-23

A program of examination of elementary school children by regional directors is being extended. Parent notification, presentation of educational material, discussions with teachers, classroom talks, all form part of this program. An intensified program of dental health education involving all groups dealing with the health of children is being promoted.

X-24 During the year 1960-61, dental clinicians carried out dental care in 55 schools. Assistance was received from practising dentists. "Established clinics" operated in six locations. These clinics are part of the health unit program and are sponsored by municipalities and / or voluntary organizations. Treatment is generally limited to emergency treatment for Grade I children.

X-25 The Dental Services Division's hygienist attends "well baby" clinics in the health units of Greater Winnipeg. Parents are counselled and preschool children examined.

X-26 Winnipeg has had a dental public health program since 1917. It has a staff of full-time and part-time dentists who conduct a program of dental health education and treatment of underprivileged and handicapped children, and who survey the city's dental health problems.

Saskatchewan:

X-27 In the Swift Current and Assiniboia - Gravelbourg Health Regions, dental programs provide services for all children up to the age of 12. The Swift Current program covers an estimated 10,000 children, while Assiniboia - Gravelbourg's covers approximately 5,500. These two programs are operated under the Health Services Act and are financed by funds from federal, provincial and municipal sources. The programs are administered by the regions' medical health officers. Provincial control over the programs exists only in so far as budgetary approval must be received from the Minister of Public Health.

X-28 Some of the province's health regions have employed dental hygienists to give dental health education and topical fluoride applications to children of three and seven years of age.

X-29 In areas with no communal water supply and a deficiency of fluoride in the water, the province provides free sodium fluoride tablets to expectant mothers and preschool children. However, the province does not favour the tablets over fluoridation of municipal water supplies.

X-30 The Minister of Public Health, Walter Erb, said in a recent statement, "We consider the fluoride tablet program as an alternative dictated by rural conditions. Our department, in common with health departments throughout the continent, considers the adjustment of municipal water supplies far more satisfactory because it is bound to benefit far more persons, does not involve the parents in a daily chore, and because it is much cheaper. There are a number of small communities in Saskatchewan where distribution of the tablets was stopped when local sewer and water systems were installed." (1)

X-31 The province would be prepared to operate children's programs in all health regions and expand its other dental public health activities considerably if personnel were only available.

Alberta:

X-32 The dental health services of this province have been developed co-operatively between the Department of Public Health, the Faculty of Dentistry of the University of Alberta, and the Alberta Dental Association. The Director of the Dental Public Health Division is also Head of the Department of Preventive and Public Health Dentistry of the Faculty of Dentistry, University of Alberta.

(1) Letter to the editor of the Toronto Globe and Mail from J. Walter Erb, Saskatchewan Minister of Public Health.

X-33 There are 24 established local health units in the province.

Seven units have full-time dental health officers, two have continuous part-time officers and seven units have part-time programs served by a dentist and / or a third year dental student. The third year dental students are limited to providing preventive services, i.e., examination and referral, consultation, dental health education, prophylaxis and topical fluoride application.

X-34 Public health dental services are provided in the cities of Calgary and Edmonton, Each city has a full-time director with graduate public health training.

British Columbia;

X-35 Autonomous preventive dental programs are operated by the metropolitan areas of Greater Vancouver and Greater Victoria. Annual grants are made to these programs through provincial and national health grant funds. Dental treatment services are provided to preschool and Grade I children. Restorations, extractions, gingival treatments, X-rays and stannous fluoride applications are included but not orthodontic care.

X-36 The 1960 Annual Report of the British Columbia Health Branch reports that 96 per cent of these Grade I children either had no apparent need for dental treatment (45 per cent), or received treatment by their family dentist (25 per cent) or through the school dental services (26 per cent). (1)

X-37 The educational activities of these programs include
counselling parents at the chairside with the child.

(1) British Columbia, Department of Health Services and Hospital Insurance, Health Branch, Annual Report, 1960, p. 60.

Yukon and Northwest Territories:

X-38 Indigent residents of the Northwest Territories are eligible for complete dental services. A special program provides free dental treatment services to all children under 17 years of age.

(b) PROGRAMS FOR RESIDENTS OF RURAL OR REMOTE AREAS

X-39 The dental health problem in rural and remote areas of the country is complicated by the unavailability of dental personnel. In many provinces, special programs have been designed to provide some care for people living in these areas. Some examples of these programs are those operated in Prince Edward Island, Nova Scotia, Ontario, Manitoba, Alberta, and British Columbia.

X-40 Children in Grades I and II in Prince Edward Island are eligible for treatment services. Fillings and extractions are provided by mobile clinics and by private dentists practising in rural areas. Approximately 1750 children utilized this service in 1960.

X-41 The province of Nova Scotia operates mobile dental units when staff is available. These units provide dental treatment to rural children between 3 and 11 years of age.

X-42 The Division of Dental Services of the Ontario Department of Public Health operates two railway coach dental clinics staffed by dentists and their assistants.

X-43 In remote areas Manitoba attempts to provide dental care to children of all ages. Clinics operate north of The Pas from May till August. In rural areas, care is given to preschool and Grade I children. Emergency care is provided all age groups. In all areas, clinics are preceded by pre-clinical examinations and dental health education programs.

X-44

In Alberta , a program for the provision of dental services in outlying communities was jointly planned and initiated by the Department of Public Health and the Alberta Dental Association. Members of the Association agreed as part of their professional responsibility to visit some of the larger rural areas which do not have sufficient population to support a full-time practice. The Department of Public Health provides sets of transportable dental equipment and travel grants to the participating dentists. The community is expected to arrange for and provide at a nominal rate office facilities for the visiting dentist and to make other necessary local arrangements. Services are provided on a private practice basis.

X-45

Locally sponsored community preventive dental programs operate in the rural health units of British Columbia. General dental practitioners provide their services on a part time basis. The primary aim of this program is to educate families in the prevention of dental disease and in the need to ensure all children receive regular dental examinations from the age of three years. Children receive treatment services either as private patients or through the community program. A wide range of treatment services is available to all preschool and Grade I pupils, and in remote communities without resident dentists, Grades II and III are also included. Beginning in the summer of 1961, British Columbia established a dental public health extern program to provide services in those communities without dentists. Each year, the plan offers four externships of nine to twelve months duration. Each extern is provided with transportable dental equipment and visits the smaller and more remote communities primarily for the community preventive program; he may also treat older children and adults on a private practitioner basis.

(c) PROGRAMS OPERATED BY VOLUNTARY ORGANIZATIONS

- X-46 The Canadian Dental Association produces and distributes hundreds of thousands of pieces of educational literature to promote dental health. In the latter part of 1960, the association produced and distributed to Canadian television stations three sixty-second films in French and English. These spot announcements have stirred a great deal of interest. One station alone reported that it devoted over \$7,000 worth of air time to these films in ten months. The estimated audiences run to the millions. The association has produced three more dental health messages for early 1962 distribution.
- X-47 The Canadian Red Cross has undertaken many dental health projects at the national, provincial and local levels.
- X-48 The National Division provided the services of a dentist to the remote outposts of the Newfoundland coast.
- X-49 The Ontario Division has operated three motorized dental trailer clinics to provide dental care to children in remote areas without a resident dentist. This division has also contributed \$200,000 in aid of orthodontic service for children outside the larger cities and towns.
- X-50 The Toronto Division's Junior Red Cross financially aids the dental rehabilitation of very needy children. It is operating a clinic for preschool day nurseries on a five year pilot project basis.
- X-51 Since September 1957, the Saskatchewan Division of the Canadian Red Cross Society has operated 15 dental clinics for children in Northern Saskatchewan. The clinics were undertaken as a five year pilot project to evaluate this method of providing dental services in remote areas.
- X-52 Clinics have been held in the spring and fall of each year. In five of the clinics, dentists donated their services while in the

others they were paid on a fee for service basis. The Junior Red Cross provides the necessary equipment. The program cost the society \$15,700.

X-53 The pilot project was considered a success. The Junior Red Cross Advisory Committee will withdraw from the project in the spring of 1962, but has recommended that the Saskatchewan Department of Public Health continue and extend the provision of dental services to the medically indigent, non-treaty children in the north of the province.

X-54 The Health League of Canada is also very active in dental health education and the promotion of fluoridation.

X-55 The Dental Health League of the Province of Quebec also carries out dental public health activities in that province. This organization originated as a committee of the College of Dental Surgeons, "but in 1954 was established as an independent commission, supported by grants from the College and from the provincial and national governments. The League has on staff eight full-time dentists, all with post-graduate qualifications in dental public health" (1)

X-56 "The League's actual program is based on the principle of educating the educators of all categories, namely; training staffs, future teachers, graduate and undergraduate nurses, parents, especially mothers and expectant mothers, etc. Through these it should be possible to reach all children." (2) With the co-operation of 35 local dentists, the League carried out the Quebec portion of the Canadian Dental Association's national dental health survey. The League also gives talks to service clubs and other organizations, prepares dental health education material for radio and television and writes articles for newspapers and periodicals. It has been very active in promoting fluoridation in Quebec.

(1) McCombie, Op. cit.

(2) McCabe, C. A. E., "Dental Health Education in Quebec," Dental Health Newsletter, 1.2:6, 1959.

FLUORIDATION

(a) COMMUNITIES FLUORIDATING AND POPULATION AFFECTED

XI-1

In January 1961, the Canadian Dental Association reported that 7.4 per cent of Canada's population was living in communities with controlled fluoridation. This represented 1,317,000 people living in 62 cities, towns, and villages, and was four times the population of fluoridated communities in 1956. Since January 1961, several more municipalities have begun fluoridating their water supplies.

XI-2

In addition, it is estimated that about 125,000 people in Canada are using water which receives its fluoride content from underground deposits. Natural fluorides occur primarily in Ontario and Saskatchewan where a considerable number of rural residents have private wells with chemically significant fluoride content.

Table XI - 1 PER CENT OF TOTAL PROVINCIAL POPULATION IN MUNICIPALITIES WITH CONTROLLED FLUORIDATION, 1961.

<u>Province</u>	<u>Per Cent</u> %
Newfoundland	.0
Prince Edward Island	.0
Nova Scotia	21.4
New Brunswick	.0
Quebec	2.8
Ontario	3.9
Manitoba	57.5
Saskatchewan	19.2
Alberta	2.4
British Columbia	3.3
Northwest Territories	16.4
Canada	7.4

Table XI - 2 MUNICIPALITIES WITH CONTROLLED
FLUORIDATION, JANUARY 1961.

Province	Municipality	Date Started	Population Affected	Total Provincial Population Affected
Newfoundland				
Prince Edward Island				
Nova Scotia				154,500
	Halifax	June 11, 1956	110,000	
	Dartmouth	July 3, 1956	35,000	
	Kentville	Feb. 16, 1956	6,500	
	Wolfville	May 1959	3,000	
New Brunswick				
Quebec				142,786
	Acton Vale	Dec. 17, 1960	4,500	
	Beaconsfield		8,900	
	Berthierville	May 1960	4,700	
	Dorval	Feb. 1956	16,177	
	Duvernay	1958	7,000	
	Joliette	1957	18,009	
	Laval des Rapides	1958	16,000	
	Pointe Claire	Feb. 3, 1955	20,000	
	Pont Viau	1958	14,000	
	L'Abord à Plouffe		12,000	
	Rock Island	July 1958	4,000	
	St. Vincent de Paul	1958	6,000	
	St. Martin		11,500	
Ontario				239,332
	Brantford	June 20, 1945	53,616	
	Brockville	Feb. 18, 1956	17,124	
	Deep River	Dec. 9, 1952	5,130	
	Fort Erie	Jan. 18, 1952	8,897	
	Oshawa	Feb. 26, 1953	60,135	
	Sudbury	Aug. 20, 1952	77,356	
	Thorold	Feb. 12, 1952	8,602	
	Tisdale Township	Oct. 3, 1955	8,472	
Manitoba				516,940
	Boissevain	Jan. 13, 1957	1,215	
	Brandon	Mar. 7, 1955	28,500	
	Dauphin	Jan. 4, 1960	7,800	
	Greater Winnipeg	Dec. 28, 1956	460,000	
	Killarney	Sept. 14, 1960	1,534	
	Minnedosa	July 7, 1960	2,406	
	Portage la Prairie	Jan. 13, 1958	12,525	
	Steinbach	May 1960	2,960	
Saskatchewan				174,847
	Assiniboia	May 1953	2,077	
	Eston	Sept. 1957	1,537	
	Kamsack	July 1959	2,728	
	Kindersley	Feb. 1959	2,445	
	Melville	Feb. 1960	5,112	
	Montmartre	Oct. 1960	465	
	Moose Jaw	Dec. 1952	32,401	
	Prince Albert	Feb. 1960	21,875	
	Rosthern	May 1960	1,258	
	Saskatoon	July 1955	82,817	
	Swift Current	Oct. 1954	11,338	
	Tisdale	May 1960	2,016	
	Weyburn	Mar. 1955	7,210	
	Wynyard	Aug. 1956	1,568	

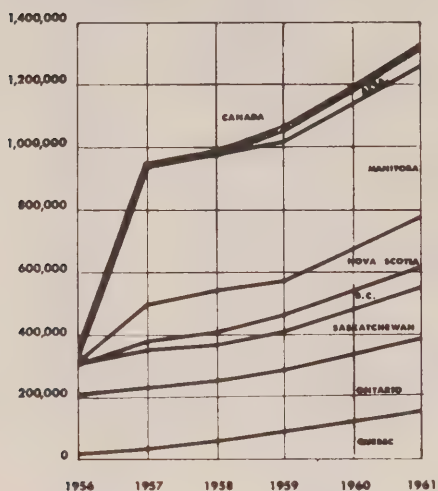
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TABLE 1 (continued)

Province	Municipality	Date Started	Population Affected	Total Provincial Population Affected
Alberta	Devon	Aug. 6, 1959	1,512	31,037
	Fairview	Mar. 4, 1958	1,448	
	Grande Prairie	July 8, 1959	7,410	
	Innisfail	June 10, 1960	1,905	
	Red Deer	June 10, 1958	18,762	
British Columbia	Burns Lake	Feb. 1960	1,300	53,631
	Campbell River	Mar. 1960	3,200	
	Kelowna	Oct. 1956	10,681	
	Kitimat	Mar. 1958	8,500	
	Lake Cowichan	Mar. 1960	2,150	
	Mesachie Lake	Feb. 1958	300	
	Prince George	Sept. 1955	13,500	
	Prince Rupert	Mar. 1957	11,500	
	Smithers	June 1955	2,500	
Northwest Territories	Yellowknife	Aug. 11, 1959	3,600	3,600
CANADA	total population affected			1,316,673

SOURCE: Bureau of Economic Research, 'Fluoridation in Canada 1961', Journal of the Canadian Dental Association, May 1961, p.319.

Figure XI - 1 POPULATION IN FLUORIDATED COMMUNITIES, 1956 - 1961.



(b) PROVINCIAL LEGISLATION

XI-3

Under the British North America Act, health is a provincial responsibility. The legislation regarding water fluoridation differs greatly in the provinces. It is summarized in the following table.

Table XI - 3 SUMMARY OF FLUORIDATION LEGISLATION, BY PROVINCE

Province	Legislation
Newfoundland	None
Prince Edward Island	None
Nova Scotia	Enabling legislation passed in 1956 gives community councils the power to treat water supplies electrically, mechanically or chemically in such manner or for such purposes as the council shall determine.
New Brunswick	A test case in the Supreme Court of New Brunswick has made it clear that, until the provincial government provides enabling legislation, it is impossible for any community to fluoridate its water. Since Brunswick Dental Society has annually recommended that the government enact enabling legislation.
Quebec	None
Ontario	Permissive legislation gives communities power to fluoridate water supplies unless 10 per cent of the voters petition for a referendum which must be passed with a simple majority.
Manitoba	Fluoridation by-law may be passed by local council and then authority requested from the Minister of Health. Special legislation regarding agreement of member municipalities in Greater Winnipeg exists.
Saskatchewan	Permissive legislation permits a municipality to treat water supplies chemically, electrically, mechanically or otherwise for such purpose as the municipal council may determine and in such manner and in accordance with such directions as may be prescribed by the Minister of Public Health.
Alberta	Before a municipal council may authorize fluoridation of the water supply, a plebiscite must be held. Fluoridation must receive the approval of two-thirds of the voters. If it does not, a further plebiscite cannot be held until at least two years have passed.
British Columbia	Municipally operated water-supplies may be fluoridated if, by public referendum, three-fifths of the voters are in favour. Other water supplies may be fluoridated if notice of intent is published and not more than 40 per cent of the customers record their dissent to the Public Utilities Commissioner within three months. The majority of community water supplies are municipally owned.

(c) STATUS OF FLUORIDATION IN CANADIAN PROVINCES

XI-4 Table XI-4 gives the status of fluoridation in various provinces and also the progress in regard to use of topical fluoride applications and use of tablets as dietary supplements. This information generally applies in the province but there may be variations in individual communities.

XI-5 In rural areas where municipal water supplies are not available for fluoridation, topical applications and tablets may prove particularly important. The cost of these methods is much greater than that of water fluoridation. Scientifically designed studies of programs using tablets need to be carried out before their public health benefit can be truly evaluated.

(d) EFFICACY OF FLUORIDATION

XI-6 The city of Brantford, Ontario has been fluoridating its water since 1945. It was one of the first cities in the world to do so.

XI-7 Since 1946, the Department of National Health and Welfare has studied the dental effects of fluoridation in Brantford by periodically comparing the caries prevalence of Brantford children with that of Stratford and Sarnia children. Stratford has a naturally fluoridated water supply while Sarnia has only a negligible amount of fluoride in its water.

XI-8 Independent surveys by the Brantford City Health Department and National Health and Welfare are in agreement that there has been a reduction in the number of decayed, missing and filled teeth in Brantford since fluoride was introduced. This reduction for ages where full benefit has been achieved is between 50 and 60 per cent. In the same period, the rates for Stratford and Sarnia have remained about the same.

Table XI-5 PERCENTAGE OF CHILDREN HAVING CARIES-FREE PERMANENT TEETH

Age Group	Sarnia		Brantford		Stratford	
	1948	1959	1948	1959	1948	1959
	%	%	%	%	%	%
9 - 11	6.1	8.1	5.7	43.8	52.1	49.9
12 - 14	.6	2.3	1.2	18.7	27.2	28.1

SOURCE: Department of National Health and Welfare, Dental Effects of Water Fluoridation, 1959 Report, p.7.

- XI-9 The Department of National Health and Welfare's 1959 report, Dental Effects of Water Fluoridation, concludes:
- XI-10 "The 1959 survey findings of the Brantford Fluoridation Study show a continuing reduction in caries experience in Brantford children fourteen years after the introduction of about one part per million of fluoride into its water supply. These and previous data indicate that a significant and progressive reduction in dental caries of Brantford children at the ages studied has taken place from survey to survey since 1948. Although Stratford (which has a naturally fluoridated water supply) still seems to have somewhat better caries levels, the Brantford-Stratford differences are in general small.
- XI-11 "There is no doubt as to the efficacy of a mechanically fluoridated water supply (containing about one part per million) in very markedly reducing the caries experience in children born subsequent to fluoridation.
- XI-12 "There is essentially no difference in caries-reducing effect between a naturally fluoridated water supply and a mechanically fluoridated water supply.
- XI-13 "No ill effects of either a medical or dental nature have been revealed by our study or reported by the medical profession, by the dental profession, or by the health authorities in either Brantford or Stratford".(1)

(1) Department of National Health and Welfare, Dental Effects of Water Fluoridation, 1959 Report, p.22.

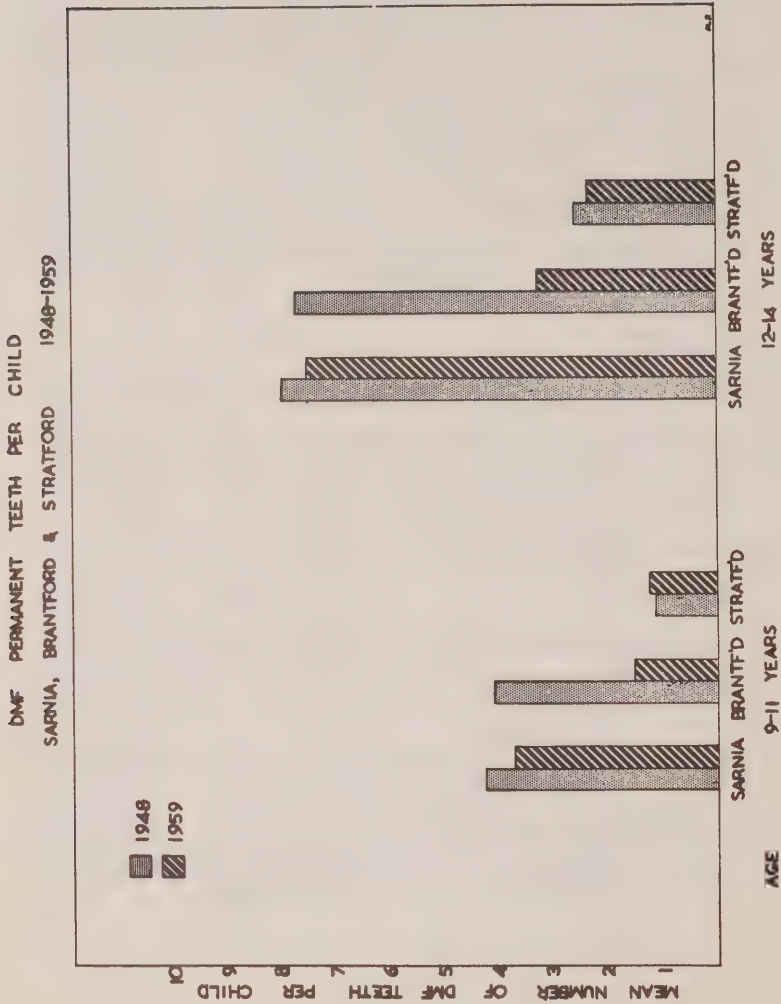
Table XI - 4 GENERAL STATUS OF FLUORIDATION IN CANADIAN PROVINCES, 1961 AS OBTAINED FROM SURVEY OF PROVINCIAL DENTAL HEALTH DIRECTORS

	Nfld.	P.E.I.	N.S.	N.B.
Population using mechanically fluoridated water	none	none	155,000	none
Annual average cost per capita	--	--	10-17 cents	--
Chemical used	--	--	sodium silico fluoride	--
Estimated population using naturally fluoridated water	2,300	--	negligible	negligible
Is there a public health program of topical fluoride?	no	yes	yes	no regular program but has been done by hygienist using sodium fluoride in past
Applications per year	--	2,000	12,000 to 15,000	
Treatments given by	--	hygienists	hygienists	
Chemical used	--	stannous fluoride	stannous fluoride	
Cost of program	--	not known	not known	
Program for F. tablets	no	no	no	none
Population served				
Chemical				
Cost of tablets				
How distributed				

XI - 7a

	Quebec	Ont.	Man.	Sask.	Alta.	B.C.
	143,000	239,000	517,000	175,000	31,000	54,000
	about 13 cents	15 cents	10-14 cents	about 15 cents		6-21 cents
	sodium fluoride	sodium & sodium sili- co fluoride	sodium & sodium sili- co fluoride	sodium & sodium sili- co fluoride		sodium & sodium silico fluoride
	unknown	104,000	9,000	10,000		negligible
	none	yes	none but a program is planned	yes		yes
		1,500		5,700		5,952
		dentists & hygienists		hygienists		dentists & hygienists
		stannous fluoride		stannous fluoride		stannous fluoride
		not known		cost not separated out but may be approx. \$20,000		cost not separated out but may be approx. \$23,000
	none	yes	no	yes		none
		100 expec- tant mothers in Hamilton		13,000		--
		Na F		Na F plus lactose binder		--
		\$2 per 1,000		\$2.20 per 1,000		--
		through clinics		by nurses in child health clinics		

Figure XI - 2 DECAYED, MISSING AND FILLED PERMANENT TEETH PER CHILD, SARNIA, BRANTFORD AND STRATFORD, 1948 - 1959.



SOURCE: Dept. of National Health and Welfare, Dental Effects of Water Fluoridation, 1959 Report, p.2.

DENTAL PUBLIC HEALTH EDUCATION PROGRAMS

(a) PURPOSE

XII-1

The primary reason for dental public health education is the fact that dental disease control is to an exceptional degree a matter of personal responsibility. It is recognized that dental caries is markedly reduced by individual restriction of sweet foods between meals, ⁽¹⁾ by proper cleaning of the teeth immediately after eating, ⁽²⁾ and by utilization of a balanced diet during the time teeth are developing. ⁽³⁾⁽⁴⁾ Also, it is known that periodontal disease can be associated with poor oral hygiene and general low physical health such as that caused by sub-optimal nutrition. ⁽⁵⁾⁽⁶⁾ Malocclusion, caries and periodontal treatment all will require less time and be more successful if incipient rather than terminal lesions are treated and this can only come about if the population accepts the responsibility of having regular dental care.

XII-2

The population is heavily exposed to advertising by commercial interests and teachings by groups with special interests. A considerable amount of the material released by these sources is quite contrary to accepted professional teaching. It is a professional responsibility to see that the true facts regarding dental health are

- (1) Gustafsson, B.E., Quensel, C.E., Lanke, L.S. Lundqvist, C., Grahnen, H., Bonow, B.E. and Krasse, B., 'The Vipeholm Dental Caries Study'. The effect of different levels of Carbohydrate intake on caries activity in 436 individuals observed for five years. *Acta Odont, Scandinavica*, 11:232, 1954.
- (2) Fosdick, L.S., 'Reduction of the Incidence of Dental Caries. I. Immediate Tooth Brushing with a Neutral Dentifrice'. *Journal of the American Dental Association*, 1950, 40:133
- (3) Paynter, K.J., and Grainger, R.M., 'The Relation of Nutrition to the Morphology and Size of Rat Molar Teeth'. *Journal of the Canadian Dental Association*, 22:519, 1956
- (4) Nutrition in Tooth Formation and Dental Caries Symposium 8, Council on Foods and Nutrition, American Medical Association, 1960.
- (5) Mehta, M.M., Grainger, R.M. and Williams, C.H.M., 'Periodontal Disease Among Adults'. *Journal of the Canadian Dental Association*, 21:617, 1955.
- (6) Brown, H.K., Kohli, F.A., Macdonald, J.B., and McLaren, H.R., 'Measurement of Gingivitis among School Children in Brantford, Sarnia and Stratford, using the P.M.A. Index', *Canadian Journal of Public Health*, 45:112, 1954

available to the population. It is also sound economics to undertake to reduce the amount and severity of disease which must otherwise be treated at a cost which amounts to a considerable fraction of the national income. It is possible that if the population were free of the penalty of paying personally for neglect, they might be less willing to observe the rules for individual control of dental disease. Thus it is felt that intensive dental health education should precede treatment services in a well-planned program. (1)

(b) HOW DENTAL HEALTH EDUCATIONAL PROGRAMS
ARE OPERATED

XII-3

Dental health education programs are most effective when directed toward young school children. (2) An adult's later attitude to proper preventive care depends to a considerable degree on his early childhood training. (3) An educational program may be rather perfunctory, consisting of the distribution of some pamphlets and perhaps a few classroom talks by an interested nurse or school teacher using material at hand. On the other hand, the program may be an intensive effort by a well-directed team of trained dental health workers who undertake to examine children in schools and clinics, demonstrating to parents the treatment need and methods of prevention in personal interviews. The value of distribution of pamphlets and generalized health lessons in school is not discounted, but it is felt that an intensive effort by specially trained dentists or hygienists is needed to obtain a measureable impact on the dental health of a community.

XII-4

Dental health education programs vary considerably throughout

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- (1) Coburn, C.I. and Grainger, R.M., 'Health Education in Relation to Dental Care Needs and Demand in the Elgin-St. Thomas Health Unit', Journal of the Canadian Dental Association, January, 1957, pp.5-11.
 - (2) Compton, F.H., Burgess, R.C., Mondrow, T.G., Grainger, R.M. and Nikiforuk, G., 'The Riverdale Preschool Dental Project', Journal of the Canadian Dental Association, 25:478, 1959.
 - (3) See Appendix V(e)..

Canada. Perhaps the most highly developed are those operating in rural British Columbia and Ontario health units. In these provinces, public health trained dentists and hygienists are employed as regular members of the health unit or municipal health department staff. The Ontario plan is unique in that the public health dentists do not engage in any treatment services. Such programs have been active in Ontario since 1945 when the Ontario division of the Canadian Red Cross provided \$50,000 to begin a program of dental education and prevention in Welland, Ontario. The Red Cross stipulated that none of this money was to be used for restorative dentistry. (1)(2)

XII-5 Some strong indirect evidence of the value of the intensive educational programs is given in terms of the National Dental Health Index figures (Appendix II). The dental conditions reported in Ontario are better in almost every aspect than the other provinces but this is probably fallacious for the province as a whole. The fact is that the data provided in Ontario came mainly from regions where a trained dental health officer was available to do the examinations and hence had been operating an educational program for some time. If the data are not completely typical for Ontario it is due to the success of the educational programs.

XII-6 In the light of this experience it is strongly felt by the Canadian Dental Association that the function of the public health dentist is quite analogous to the medical health officer who organizes preventive services in a community while leaving treatment in the hands of the community practitioners.

XII-7 Some of the functions of a dental health educational program directed by a trained public health dentist who may be aided

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- (1) Grainger, R.M., and Sellers, A.H., 'The Welland District Dental Health Program'. Canadian Journal of Public Health, 43:415, 1952.
 - (2) Sturgeon, L.W.C., 'Dental Public Health', Journal of the Canadian Dental Association, 15:625-637, Dec. 1949.

by one or more hygienists may be mentioned as follows. It is important to emphasize that the local programs are the responsibility of the local dental health directors who plan and guide the work in the light of regular sampling surveys.(1)(2)(3)

(i) Activities in schools

XII-8

The main work in the schools consists of periodic examination of all students and referral for treatment. The merit of the periodic examination lies in the fact that incipient dental disease can be recognized by the dentist or hygienist and thus the child patient can then receive corrective treatment before the gross defects recognizable by parents or non-dental health workers have occurred.

XII-9

Besides the work of examining pupils, the public health dentist organizes the teaching of dental health procedures both by supplying material to the teachers (4) and by direct talks to the students. These teaching activities are supplemented by visual aids such as films and slides and by demonstrations.

XII-10

The dental health officers also supply school authorities with the statistical findings from their spot surveys with the result that school principals become quite interested in promoting the dental health of students in their respective schools. Welland, Ontario, provides an excellent example of the community pride which a program of this type can engender.

XII-11

One of the most consistent results of dental educational

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- (1) Canadian Dental Association, The Evaluation of Canadian Dental Health, A System for Recording and Statistical Analysis at the Community, Provincial, and National Level. July, 1959.
 - (2) Connor, R.A., Grainger, R.M., 'The Dental Public Health Program in St. Catharines-Lincoln Health Unit', Journal of the Dental Association, 22:540, 1956.
 - (3) Lawrence J.W.M., 'Is a Preventive Dental Program Worthwhile', Journal of the Canadian Dental Association, 23:703-705 Dec. 1957.
 - (4) Your Child and Mine, Published by Dental Public Health Committee of Ontario Dental Association.

programs in schools has been the decrease of the backlog of untreated dental defects to less than 50 per cent with the treatment being performed by local dentists at the expense of the parents. This is considered far more desirable than the provision of free service of a limited nature to children while the parents remain uneducated and unaware of the value of the service rendered and still needed by their children.

(ii) Activities in Pre-natal and Child Health Clinics

XII-12

Although the work in schools led to considerable improvement in dental health, it was soon recognized from the statistical records that many children entered school at kindergarten age in very neglected dental health condition. Accordingly, a large proportion of dental education effort has gone into work among pre-school children. In Canada it is currently very difficult to obtain the names and addresses of children prior to school registration, but a great many parents of pre-school children are able to be contacted when they present themselves at "well-baby clinics" or "immunization-clinics" which are regularly conducted by most health departments. In some instances, preventive dental service in the form of topical fluoride applications has been given in the pre-school clinics along with the oral examination of the children and counselling service to the parents. In other regions, individual oral bacterial tests which reflect caries activity have been used as a visual aid to the health teaching. In all instances, it is clear that dental health education at the personal level, given directly to a parent in terms of the child's needs, is much better than group methods such as lectures to home and school associations.

XII-13

Expectant mothers are given information regarding pre-natal diet and care of the child's teeth. It is felt that health teaching under these circumstances is very fruitful because of the parent's intense interest at this time in the child's welfare.

(iii) Activities with Community Dentists

XII-14. The dental health directors have an important duty in securing the interest of the communities' dental practitioners in the performance of treatment for children. In 1947 in Welland, Ontario, an average of one to two child patients a day were being seen by the local dentists; but by 1951, after five years of an educational program, the number of child patients was found by actual examination of the dentists' appointment books to have risen to about five per day. This was an important shift in the emphasis of dental practice brought about through educating the public to demand service for their children. In recognition of the new emphasis on dentistry for children the dental health officers have aided the dentists in their community by arranging extra-mural courses ⁽¹⁾ and also have provided consultant services to aid in diagnosis and treatment planning. ⁽²⁾ Therefore, the presence in a community or health unit of a trained public health dentist in many ways raised the level of practice of the local dentists.

(iv) Research

XII-15 The dental health officers have played vital rôles in the development of preventive measures such as water fluoridation by collaborating with their research associates in the universities and provincial and federal health departments. The importance of aid from dental health officers in conducting epidemiological research and trials of preventive measures is greatly valued by those in the research field. Research and the development of better control measures are important duties of the dental health officer. ⁽³⁾

(1) Dental Seminar Program, supported by a National Health Grant in Ontario and operated by the Ontario Dental Association, Proceedings of the Royal College of Dental Surgeons of Ontario, 1952 to 1957.

(2) Burlington Orthodontic Research Centre, Division of Dental Research, Faculty of Dentistry, University of Toronto, Report 1, November 1956, page 21,

(3) A Symposium, 'Priorities in Dental Health Programs' Journal of the Canadian Dental Association, April 1959, pp. 219-231.

(v) Activities in the Community at Large

XII-16 Dental health education is in considerable demand by the community, the press, radio and television agencies. The dental health teachings disseminated must be correct and pertinent to the community needs, and it is one of the duties of a public health dentist to supply such information. Other community activities of the public health dentist include organization of dental services for special population groups such as handicapped children, aged persons and welfare recipients. While many of these activities may be and are carried on by volunteers through local dental societies, such efforts tend to be intermittent and expedient in nature. Sound community dental health planning and organization demands the full time attention of a dental specialist in public health.

(c) EFFECTIVENESS OF DENTAL HEALTH EDUCATIONAL PROGRAMS

XII-17 The effectiveness of dental health education programs was demonstrated by Dr. Coburn's and Dr. Grainger's study ⁽¹⁾ of one Ontario health unit's educational program after its first four years of operation.

They found that:

- the percentage of children under 14 with dental treatment completed or never needed increased from 15.5 per cent to 32.7 per cent;
- the number who exhibited no caries experience increased from 23 to 43 per cent;
- the average number of teeth requiring restoration decreased

(1) Coburn, C. I. and Grainger, R. M. 'Health Education in Relation to Dental Care Needs and Demands in the Elgin-St. Thomas Health Unit Area', Journal of the Canadian Dental Association, January, 1957, pp.5 - 11.

from 3.55 to 1.72 for non-fluoride areas and from 2.81 to 1.16 for fluoride areas.

- XII-18 It was the opinion of Drs. Coburn and Grainger that, "If at some time in the future a prepayment dental treatment program were introduced, certain advantages could be gained if it were preceded with and accompanied by intensive dental health education programs". These advantages would include the reduction to about one half of the number of teeth needing initial care under the prepayment program, the provision of an ethical and effective method of controlling the quality of treatment services and the collection of statistics on prevalence and incidence of dental defects which would provide a ready guide to future extensions of the prepayment program and which would enable the results of such a program to be evaluated. The continued teaching of control measures could reduce the incidence and therefore costs of dental disease.
- XII-19 In summary, the following may be stated regarding the usefulness of intensive dental health education programs.
- XII-20 (i) Public health appreciation for a service is vastly greater and parents are willing to accept the responsibility of providing the best treatment service when the need is explained to them. This is in contrast to the passive acceptance of a marginally adequate service at public expense which is little understood or appreciated.
- XII-21 (ii) When dental health educational programs are active, the backlog of unfilled treatment is greatly reduced at the patient's own expense, indicating that much of the public neglect of dental treatment is ignorance rather than apathy. The educational approach encourages the individual to accept responsibility for control of disease because the patient himself benefits by improved dental health and reduced treatment costs.

- XII-22 (iii) Regularly compiled statistical data collected from a systematic sample of school children by a dental health officer makes it possible to plan and evaluate the results of the community's dental health program.
- XII-23 (iv) The conduct of research and testing of preventive measures possible through the dental health officer in conjunction with university staff is of great importance. A large percentage of the practical research in dental public health is currently carried out by dental health officers because they are trained for the work and have access to large groups of the population.
- XII-24 (v) The continued teaching of control measures to the public on an intensive basis and the encouragement to seek early care before defects become advanced and difficult to treat offers one of the major hopes for eventual control of dental disease.

DENTAL CARE PROGRAMS FOR BENEFICIARIES
OF PROVINCIAL PUBLIC ASSISTANCE

XIII-1 Five provinces, Ontario, Manitoba, Saskatchewan, Alberta, and British Columbia, have programs whereby public assistance beneficiaries receive dental treatment from their own dentists and have all or part of their dental bills paid from public funds. Almost 194,000 are covered by these plans.

(a) ONTARIO

XIII-2 The Ontario plan began in 1959. It covers all children under 16 years of age who are beneficiaries under the Mothers' and Dependent Children's Allowances Act of 1957. Basically, the program is one of caries care services including examination with X-rays, prophylaxes, extractions, and silicate and amalgam restorations. The government pays a grant of 70 cents per month per eligible child. The program is administered by the Royal College of Dental Surgeons of Ontario through Canadian Dental Service Plans Incorporated. The dentist is paid on the basis of 70 per cent of the Ontario Dental Association fee schedule.

XIII-3 In 1960, an average of 21,619 children were eligible and 8,419 (38.0 per cent) utilized the benefits of the program. The services cost \$18.82 per patient.

(b) MANITOBA

XIII-4 Dental benefits under Manitoba's Medicare plan were initiated in July, 1960. Welfare recipients - Old Age Pensioners, Wards of the State, Mothers' Allowance beneficiaries, blind persons - their dependents and children to age 18 are eligible for all general types of dental service excluding orthodontics, root canal treatments, bridge work and space maintenance. The government pays the cost of services plus the cost of administration to the Manitoba

Dental Association which administers the plan. Dentists are paid on a fee-for-service basis according to a Medicare fee schedule. About 17,600 people are covered by the program. The average cost per patient is \$39.43.

(c) SASKATCHEWAN

- XIII-5 Two groups of beneficiaries are eligible for dental services under the public assistance health services program. Long term beneficiaries are Old Age Security cases and those on Blind Persons' or Mothers' Allowances and their dependents. Short term beneficiaries are nominated for coverage by the Departments of Social Welfare, Municipal Affairs, and Natural Resources and include, among others, government wards and social aid cases.
- XIII-6 Patients choose their own dentists, and receive free of charge those dental services which are essential for the maintenance of health. These include examinations, X-rays, surgery, restorations and stannous fluoride applications for children up to age 14. The patient pays part of the cost of denture work. There is a five year waiting period for the replacement of dentures. Prior authorization is required for dentures and bridges, gold inlays, orthodontic and periodontal procedures. Occasionally children under 14 are referred to orthodontists; there are restrictions on the types of malocclusion that can be treated. Prophylaxes, posterior bridges, and partial dentures are excluded services.
- XIII-7 The program is administered by the provincial Department of Health. Dentists are paid on the basis of a fee schedule agreed upon by the Minister of Health and the College of Dental Surgeons of Saskatchewan.
- XIII-8 In 1959-1960, 32,213 persons were eligible for these services. The acute shortage and bad distribution of dentists in Saskatchewan operates as a deterrent to utilization of the benefits. Only 20 per cent of all beneficiaries accepted the services in 1959-1960:

Table XIII - 1 PER CENT UTILIZATION OF DENTAL
SERVICES BY PUBLIC ASSISTANCE CATEGORY, SASKATCHEWAN,
1959 - 1960.

<u>Public Assistance Category</u>	<u>Per Cent Utilization</u>
	<u>%</u>
Long term cases	18.2
Mothers' allowance	37.7
Short term cases	29.9

SOURCE: Saskatchewan, Department of Public Health,
Medical Services Division, Statistical Tables
Fiscal Year ending March 31, 1960.

Lowest utilization rates were experienced for the Old Age Pensioner.

XIII-9 The cost of the services per beneficiary was \$2.70.
Average cost per patient was \$13.51 in 1959 - 1960. This cost is expected to rise considerably in the 1960 - 1961 period due to an increase in the fee schedule.

(d) ALBERTA

XIII-10 Dental treatment under the Bureau of Public Welfare Act began in 1947. In that year, Mothers' Allowance dependents were covered. Other groups were added to the plan in 1950, 1953, and 1958. The beneficiaries are now the Old Age, Old Age Assistance, and Blind Pensioners, their spouses and dependent children, Disability Pensioners, recipients of Widows and Mothers' Allowance and their dependents.

XIII-11 All dental services are covered except major orthodontics, posterior bridges and posterior gold restorations. The patient pays one-half of the fee for prosthetics, bridge and denture work. Prior authorization is required for minor orthodontics and partial dentures.

XIII-12 The government pays a monthly grant of 40 cents per beneficiary to the Alberta Dental Association which administers the plan. The dentist is paid on a special fee schedule negotiated by the association and the government.

XIII-13 Of the 47,591 persons eligible only 20 per cent received dental care in 1960.

XIII-14 Costs varied with the category of beneficiary but averaged \$21.06 for all groups.

Table XIII - 2 AVERAGE COST PER PATIENT FOR DENTAL SERVICES RECEIVED UNDER THE BUREAU OF PUBLIC WELFARE ACT, ALBERTA, 1960.

<u>Type of Beneficiary</u>	<u>Average Cost</u>
	\$
Old Age Pensioners	18.52
Dependents and Spouses	25.25
Blind	22.58
Dependents and Spouses	20.86
Mothers' Allowance	22.58
Dependents	22.48
Old Age 65 - 69	18.90
Dependents and Spouses	19.96
Widows	22.08
Dependents	26.00
Disability Pensioners	21.37
Dependents	23.72
Total	21.06

(e) BRITISH COLUMBIA

XIII-15 Two programs of dental care for welfare recipients are operated in British Columbia. The British Columbia Dental Association administers the program, "Dental Care for Younger Dependents of Persons in Receipt of Social Assistance", while the Department of Social Welfare operates the dental care program for all other welfare recipients - Social Allowance, Old Age Security, Old Age Assistance, Blind, Disabled Persons and for Child Welfare cases. In the under 13 group, all services except orthodontics are covered. Special authorization is required for anything other than fillings and extractions. Under the "Dental Care for Younger Dependents of Persons in Receipt of Social Assistance" program, the dentists are paid on a fee for time basis. Remuneration under the other dental welfare plan is by fee for service. In 1959 - 1960, 74,415 persons were eligible under both plans. The average cost of the plan administered by the dental association was \$28.06 per patient.

Table XIII - 3 PER CENT OF BENEFICIARIES ELIGIBLE FOR DENTAL TREATMENT UNDER THE BUREAU OF PUBLIC WELFARE ACT, ALBERTA, WHO UTILIZED THE SERVICES, 1947 - 1960.

Type of Beneficiary				
	1947	1948	1949	1950
	%	%	%	%
Old Age Pensioners				7.8
Dependents and Spouses				8.4
Blind				13.0
Dependents and Spouses				12.4
Mothers Allowance				25.8
Dependents	20.5	26.5	24.9	25.7
Old Age 65 - 69				
Dependents and Spouses				
Widows				
Dependents*				
Disability Pensioners				
Dependents				
Total				11.5

* The members eligible in the group varied between one and six between 1953 and 1960. x

XIII-5a

Per Cent Utilization										
1951	1952	1953	1954	1955	1956	1957	1958	1959	1960	
%	%	%	%	%	%	%	%	%	%	%
7.7	9.5	9.6	8.6	9.2	8.0	10.4	10.5	9.5	9.3	
9.4	10.3	10.3	7.9	8.0	7.7	7.9	10.4	8.2	9.9	
14.9	16.7	27.6	26.0	30.8	28.7	21.5	20.3	25.0	20.9	
19.0	20.8	14.7	16.3	17.5	16.6	17.0	21.8	18.4	26.2	
25.3	32.6	43.7	37.4	39.4	37.5	39.0	38.6	47.1	46.3	
33.3	25.2	38.8	39.4	40.6	40.7	45.5	46.3	51.4	51.3	
		18.3	19.3	23.3	23.3	14.5	14.8	14.9	13.9	
		15.4	18.1	19.0	24.0	14.2	17.5	18.0	15.1	
		18.3	18.7	17.4	17.7	16.7	16.8	17.7	19.9	
		50.0	200.0	75.0	100.0	16.7	33.3	66.7	100.0	
							20.8	27.2	30.0	
							15.7	25.2	24.3	
11.6	14.4	16.4	15.8	17.2	16.7	17.5	18.7	20.1	20.1	

GOVERNMENT EXPENDITURES ON
DENTAL HEALTH

(a) NATIONAL HEALTH GRANTS

- XIV.1. In all provinces, dental projects have qualified for financial assistance from National Health Grants. The nature of these projects varies considerably from province to province but they are mainly directed to children with the exception of certain dental care for mental and tubercular patients.
- XIV.2. In several provinces Child and Maternal Health Grants have provided for the dental care or dental health education of children. General Public Health Grants have been used to provide dental care to children in remote areas. Professional Training Grants have assisted the training of public health dentists and dental hygienists. Several dental projects have received aid from the Crippled Children Grant.
- XIV.3. It is estimated, however, that only two per cent of the total health grants (other than hospital construction grants) have been spent on dental health.

Table XIV. 1. TOTAL NATIONAL HEALTH GRANTS
EXPENDED*, ESTIMATED AMOUNT AND PERCENTAGE
OF THESE GRANTS SPENT ON DENTAL HEALTH, 1948-1961

Province	National Health Grants		Per Cent Spent on Dental Care
	Dental Care	Total	
	\$	\$	%
Newfoundland	626,353	8,850,568	7.1
Prince Edward Island	231,528	2,856,744	8.1
Nova Scotia	322,282	14,103,952	2.4
New Brunswick	276,838	12,328,457	2.2
Quebec	699,869	81,379,605	0.9
Ontario	930,172	66,529,051	1.4
Manitoba	263,428	15,919,575	1.7
Saskatchewan	529,619	18,839,419	2.8
Alberta	183,639	19,751,498	0.9
British Columbia	1,110,866	23,874,593	4.7
North West Terr.	29,845	351,949	8.5
Canada	5,204,439	264,785,411	2.0

* Excluding grants for hospital construction

SOURCE: Unpublished data prepared by the Department of
National Health and Welfare, Ottawa.

(b) ANNUAL GOVERNMENT EXPENDITURES ON DENTAL HEALTH

XIV.4. It is very difficult to determine the amount of money being spent on dental health by the municipal, provincial and federal governments as many departments of health do not itemize expenditures for dental care separately.

XIV.5. Five departments of the federal government make direct expenditures for dental care: National Health and Welfare, National Defence, Veterans' Affairs, Justice, Northern Affairs and National Resources.

Table XIV.2. ANNUAL EXPENDITURES ON DENTAL CARE BY FEDERAL GOVERNMENT DEPARTMENTS

Department	Dental Care Expenditure	Per Cent of Total Health Care Expenditure
	\$	%
National Health & Welfare	1,085,910	Approx. 0.5
National Defence	NA	NA
Veterans' Affairs	874,391	1.3
Northern Affairs	*	
Justice	62,100	NA

* No significant expenditure

XIV.6. Provincial and municipal expenditures on dental care are equally difficult to uncover, but rough estimates have been provided by the dental directors of some provinces. These amounts do not include expenditures for dental services in hospitals and institutions.

Table XIV.3. ANNUAL EXPENDITURES ON DENTAL
HEALTH BY PROVINCIAL AND MUNICIPAL GOVERNMENTS

Province	Dental Health Expenditure	Per Cent of Total Health Expenditure
	\$	%
Newfoundland	130,000	NA
Prince Edward Island	32,000	2.1
Nova Scotia	77,000	.2
New Brunswick	NA	NA
Quebec	NA	NA
Ontario	NA	NA
Manitoba	196,000	2.9
Saskatchewan	237,000	.5
Alberta	588,000	.9
British Columbia	585,000	.5

POST-PAYMENT AND PREPAYMENT

- XV - 1 The first Canadian post-payment plan began operating in Saskatchewan in 1955. Post-payment plans, sponsored by the respective provincial professional organizations, are now established in Nova Scotia, New Brunswick, Quebec, Ontario, Saskatchewan, Alberta, and British Columbia.
- XV - 2 With the exception of Alberta, the provincial plans are now administered by Canadian Dental Services Plans Incorporated. This organization was chartered by the dental profession to provide accounting and administrative services to individual dentists or provincial dental service corporations and to assist in the operation of dental post-payment, prepayment, and government welfare plans as they developed.
- XV - 3 To belong to the plan, a dentist pays an original membership fee and one per cent of any amounts remitted to him. The patient and the dentist themselves work out the basis of the agreement - - the size of the payments and the number of months over which payment is to be extended. D.S.P.I. makes no regulations about minimum or maximum limits to the size of accounts to be handled and does not stipulate the amount of individual payments or the length of the contract period.
- XV - 4 The patient receives a coupon book which he presents when making payments to his dentist, to any chartered bank, or to the D.S.P.I. office. As each payment is received, a coupon is taken from the book and the stub is receipted.
- XV - 5 The patient pays \$1 service charge and 30 cents per month for accounts under \$150 or 50 cents per month for accounts over \$150.

Table XV - 1 NUMBER OF DENTIST MEMBERS,
PATIENTS' ACCOUNTS AND AVERAGE AMOUNT OF ACCOUNTS,
D.S.P.I. POST-PAYMENT PLANS, BY PROVINCE, 1961.

Province	Dentist Members	Patients' Accounts	Average Amount
			\$
Prince Edward Island	2	5	90
Nova Scotia	67	258	142
New Brunswick	22	156	125
Quebec	64	111	90
Ontario	920	14,400	240
Saskatchewan	73	1,812	110
Alberta	188	561	116
British Columbia	14	90	138
Total	1,350	17,393	218

XV - 6 The Vancouver and District Dental Society also operates a budget plan which in 1960 processed 187 loans for a total of \$30,000. In Manitoba, two private finance companies feature post-payment plans.

XV - 7 It is evident that these plans have not been unqualified successes. Post-payment plans are very useful in enabling people to budget for large dental bills of an uninsurable nature, but they are not substitutes for prepayment plans.

XV - 8 Unfortunately, in Canada very little experience in dental prepayment plans has so far been gained. Some provincial dental associations have done much preliminary work in preparing for prepayment schemes. In several provinces, plans for their establishment are well along the way.

APPLICANTS TO AND ENROLMENT IN CANADIAN SCHOOLS

(a) APPLICANTS

XVI - 1 In 1961, 601 applicants submitted 667 applications for admittance to the 338 places in freshman dental classes in Canadian universities. This was an increase of 235 applicants over the 1960 total. The increase in Canadian applicants was 210 or 77 per cent while the increase in foreign applicants was only 25 or 27 per cent. No attempt can be made to establish how many of these applicants were qualified for admittance to the dental schools to which they applied.

XVI - 2 There has been a great increase in interest in dentistry as a career during the past year. Reasons for this would seem to be increased efforts on the part of the profession to interest suitable students in dentistry, in particular the activities of the National Recruitment Committee provincial and local dental organizations, newspaper articles stressing the grave shortage of dental personnel and television messages on dental health.

Table XVI - 1 APPLICATIONS TO CANADIAN DENTAL SCHOOLS 1961, PER CENT INCREASE OVER 1960 AND RATIO OF 1961 APPLICATIONS TO FRESHMAN ACCOMMODATION

Dental School	Applications 1961	Per Cent Increase	Applicants per Freshman
Dalhousie	52	15.6	2.1
McGill	102	1.9	2.6
Montreal	90	52.5	1.5
Toronto	203	181.9	1.6
Manitoba	93	19.2	2.8
Alberta	127	25.7	2.3
Total	667	45.3	2.0

(b) ENROLMENT

XVI-3 During the 1961 - 62 term, 1,052 students are enrolled in Canada's six dental schools. This is an increase of 15 per cent

over last year's enrolment and a 19 per cent increase in freshmen.

XVI-4 The per cent wastage between the first year of the 1960 term and the second year of the 1961 term was 11 per cent. Twenty-four of the 30 students who did not return to second year failed.

XVI-5 In 1961-62, there are 5.4 Canadian dental students per 100,000 population. Among the ten provinces, this figure ranged from 1.7 to 8.7. These figures include Canadians at American schools.

XVI-6 Ten per cent of all students in Canadian schools come from other countries. Fifteen per cent attend schools in provinces other than their home province.

XVI-7 Thirty-eight (3.6 per cent) of all dental students are women. Of the ten women who were among the 174 graduates in 1961, it is interesting to note that seven were foreign born.

Table XVI - 2 UNDERGRADUATES ENROLLED IN CANADIAN DENTAL SCHOOLS, 1961 - 1962

Dental School	Total	Year			
		1st	2nd	3rd	4th
Dalhousie	60	18	13	14	15
McGill	139	39	33	31	36
Montreal	172	60	28	39	45
Toronto	429	120	110	114	85
Manitoba	95	33	27	20	15
Alberta	157	50	44	33	30
Total	1,052	320	255	251	226

Table XVI - 3 WOMEN DENTAL STUDENTS ENROLLED IN CANADIAN DENTAL SCHOOLS, 1961 - 1962

Dental School	Total		Year			
	No.	Per Cent	1st	2nd	3rd	4th
Dalhousie	2	3.33	2	-	-	-
McGill	3	2.15	-	-	-	3
Montreal	4	2.32	-	2	-	1
Toronto	28	6.52	6	10	7	5
Manitoba	1	1.05	-	-	-	1
Alberta	-	-	-	-	-	-
Total	38	3.61	9	12	7	10

Table XVI - 4 WASTAGE OF FIRST YEAR STUDENTS, 1960-1961

Dental School	Loss		Reason		
	Students	Per Cent	Failed	Transferred	Other
Dalhousie	2	15.4			2
McGill	4	10.8	4		
Montreal	9	27.3	7	2	
Toronto	7	6.2	7		
Manitoba	6	21.4	6		
Alberta	2	4.3		2	
Total	30	11.1	24	4	2

Table XVI - 5 STUDENTS GRADUATING FROM CANADIAN DENTAL SCHOOLS, 1961.

Dental School	Total	Men	Women	
			Canadian Born	Foreign Born
Dalhousie	13	13	0	0
McGill	34	31	1	2
Montreal	31	30	0	1
Toronto	72	67	1	4
Alberta	24	23	1	0
Total	174	164	3	7

Table XVI - 6 NUMBER OF UNDERGRADUATE STUDENTS ENROLLED IN CANADIAN DENTAL SCHOOLS, 1957 - 1961.

Term	Total		Dental School					
	No.	Per Cent Change	Dal.	McG.	Mtl.	Tor.	Man.	Alta.
1957-58	787	+ 0.3	53	141	176	310		107
1958-59	824	+ 4.7	55	144	178	319	21	107
1959-60	906	+10.0	60	145	172	368	42	119
1960-61	914	+ 0.9	54	140	151	371	64	134
1961-62	1,052	+15.1	60	139	172	429	95	157

Figure XVI-1 DENTAL STUDENTS PER 100,000 POPULATION,
BY PROVINCE, 1957 - 1961.

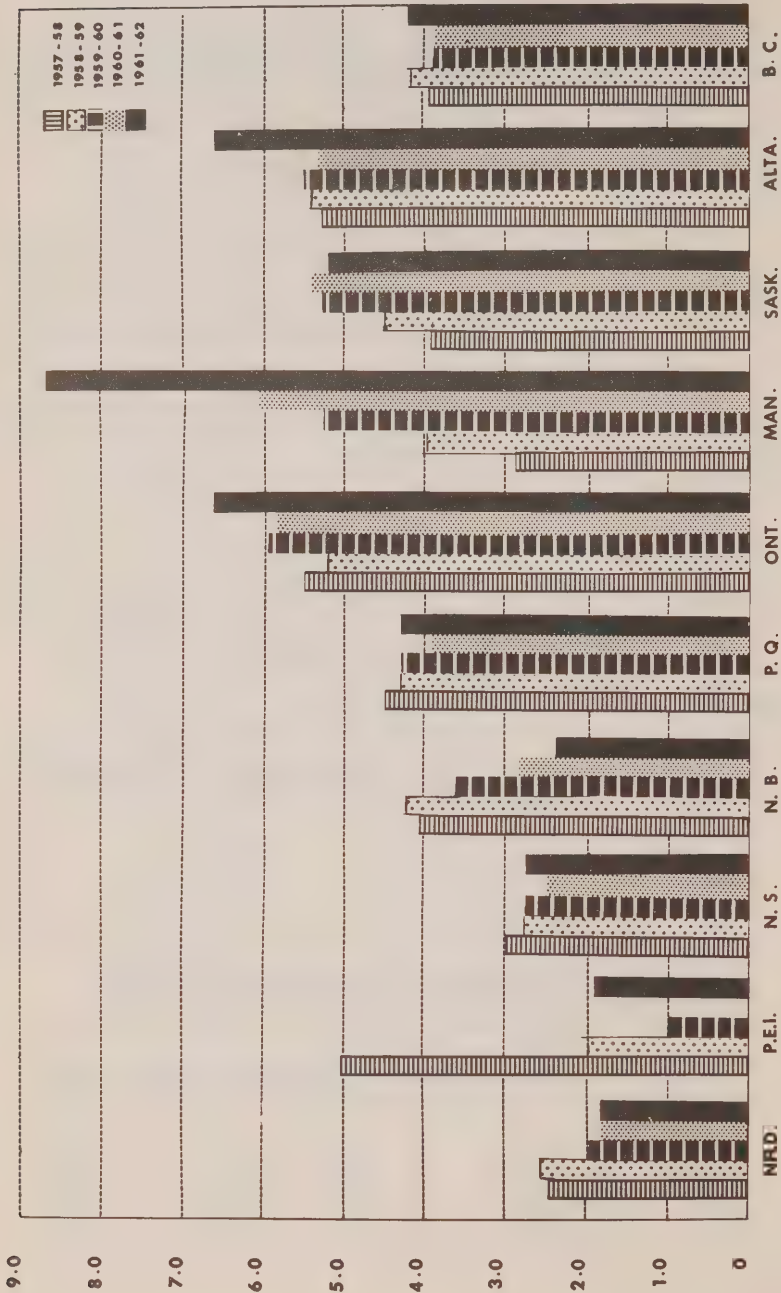


Table XVI - 7 DENTAL STUDENTS PER 100,000 POPULATION BY PROVINCE, 1957 - 1960.

Province	1957-58	1958-59	1959-60	1960-61	1961-62
Newfoundland	2.3	2.5	2.0	1.7	1.7
Prince Edward Island	5.1	2.0	1.0	...	1.9
Nova Scotia	3.0	2.7	2.7	2.4	2.7
New Brunswick	4.1	4.3	3.6	2.8	2.3
Quebec	4.5	4.3	4.3	3.9	4.3
Ontario	5.5	5.2	6.0	5.9	6.7
Manitoba	2.9	4.0	5.3	6.1	8.7
Saskatchewan	3.9	4.5	5.3	5.5	5.2
Alberta	5.3	5.5	5.6	5.4	6.7
British Columbia	4.0	4.2	3.9	3.9	4.3
Canada	4.6	4.5	4.9	4.7	5.4

Table XVI - 8 PER CENT OF ALL STUDENTS AT SCHOOL WHO ARE FROM OUTSIDE THE PROVINCE IN WHICH THE DENTAL SCHOOL IS LOCATED, 1961 - 1962.

	All Dental Schools	Dental School					
		Dal.	McG.	Mtl.	Tor.	Man.	Alta.
	%	%	%	%	%	%	%
Other provinces of Canada	14.9	46.6	13.7	3.5	3.5	23.2	42.7
Other countries	10.0	21.7	41.7	5.2	4.4	2.1	2.5
Total	24.9	68.3	55.4	8.7	7.9	25.3	45.2

Appendix XVII-1

Table XVII-1

ADMISSION PROCEDURES IN CANADA

	Dalhousie	McGill	Montreal
I. Make-up of Admissions Committee	dean (chairman), 1 dental faculty member, president of university	dean (chairman), 2 senior faculty members, vice principal of university, registrar of university, chairman of aptitude test committee	2 staff members (one of whom serves as chairman), one rep. from fac. of science, registrar of the university
II. Meetings of Committee	No special meeting dates. Preliminary screening done in Jan. and Feb. and some (up to 1/2 class) may be accepted fully or conditionally at a relatively early date (i.e. late winter or early spring).	Applicants considered at several meetings throughout the year. Applicants records and qualifications summarized and circulated to Admissions Committee members periodically (i.e. when 10 or 12 applications have been so summarized).	Once a month during months of June, July and Aug. and perhaps September.

AN DENTAL SCHOOLS

	Toronto	Manitoba	Alberta
	dean (chairman), 5 dental faculty members, registrar of pro- vincial licensing board, registrar of university	president of uni- versity (chairman), dean of arts and science, rep. of arts and science, rep. of basic sciences, rep. of Manitoba Dental Association, registrar of the university, 2 dental faculty members, dean of faculty of dentistry	4 dental faculty members, one of whom serves as chairman, 1 rep. from the faculty of medicine, registrar of the university, head of student counselling services of the uni- versity, 1 rep. from Alberta Dental Association
	Meetings once a month throughout the year with main meetings in June and September.	Usually only 1 meeting a year in mid-June. Auth- ority delegated thereafter to pre- sident,* dean of faculty and regis- trar	One meeting in early June, authority dele- gated thereafter to dean (the chairman of the committee) and registrar. A second meeting is held late in August to consider applicants for the dental auxiliary course.

	Dalhousie	McGill	Montreal
III. "Deadline" date for applications*	June 1st	March 1st	July 1st
IV. Minimum Average Req.	A specified mini- mum average.	No	A specified minimum average
V. Geographic Preference	Yes, Atlantic Provinces	No	No, must speak French however
VI. Aptitude test	No	Yes	No
VII. Interview required	Required of Dalhousie pre- dental students	Yes	Yes
VIII. Deposit	\$100	\$50	No deposit
* not strictly adhered to in most schools			

XVII-2a

	Toronto	Manitoba	Alberta
	March 1st	April 30th	May 15, Canadian applicants; April 15, non-Canadian applicants
	60% minimum average	Calender states that applicants with less than 65% average not encouraged to apply, but candidates with 60% have been taken reasonably frequently in the past	65% average in all preprofessional work following Sr. Matric.
	No	To some extent as follows: 1. Manitoba residents. 2. Other prov. without dental schools	1. Alberta residents 2. Other residents of western Canada
	No	No	No
	No (may be changed)	No	Required of Alberta predental students
	No deposit	\$20 (to be raised to \$100)	\$25

(b) PREPROFESSIONAL REQUIREMENTS

XVII-1 Generally, the minimum requirement is one pre dental year in a faculty of arts and science after senior matriculation or its equivalent and includes the subjects of chemistry, physics, zoology, and/or biology, as well as mathematics, English, and other subjects.

(c) FOREIGN GRADUATES

XVII-2 The pattern of dental education in other countries differs materially from that in Canada and the United States. It is extremely difficult for Canadian schools to evaluate credentials from a multiplicity of foreign universities and equate these with Canadian standards. In an endeavour to overcome these problems each school has devised its own regulations for the admission of foreign dentists. (1)

Dalhousie

XVII-3 Some applicants can be admitted directly to the third or fourth dental years. With others, it is necessary to assess the quality of their previous training. They are required to take either written or oral examinations in anatomy, physiology, biochemistry, bacteriology, pathology, and pharmacology and practical examinations in the major clinical areas.

McGill

XVII-4 Applicants submit documented records of previous training and experience. Those judged most eligible may sit for theoretical and clinical examinations which cover a three day period. While largely clinical, oral examinations are also given.

(1) The licensing boards of Newfoundland, Ontario, Manitoba, Saskatchewan, Alberta, and British Columbia will accept for examination without further study graduates from certain dental schools in the United Kingdom, Australia and New Zealand. See Appendix XXI

On the basis of the examinations, facility in English, and the number of places available, the examining committee makes recommendations to the Faculty of Dentistry. Admissions are normally to the second or third year.

Montreal

- XVII-5 Candidates may be requested to sit for an entrance examination. If successful, they are then admitted to the second dental year. If they pass this year successfully, they are admitted to the fourth year. They may be requested to include junior year subjects in their senior year curriculum.

Toronto

- XVII-6 Holders of the B.D.S. degree from certain British Commonwealth dental schools are admitted to the fourth dental year. Holders of the L.D.S. diploma are required to complete both the third and the fourth dental years.

- XVII-7 Graduates from all other schools must write a qualifying examination comprising four written papers on general and dental anatomy, histology, dental materials and technology, and elementary organic chemistry. Candidates are then chosen for admission to second year dentistry on the basis of their academic credentials and their results in the examination. These students may pass directly from second to fourth year.

Manitoba

- XVII-8 Dental graduates from countries other than Great Britain, Australia and New Zealand submit their credentials to the office of the dean for assessment. The candidate is interviewed primarily to determine his facility in English. The candidate may then be admitted to the second dental year as a probationary year. If progress is satisfactory, the student becomes a member of the third year class at the end of the probationary year. It is possible

that the student may be promoted more rapidly and earn his degree in less than three years.

Alberta

XVII-9 Holders of the B.D.S. degree from Commonwealth dental schools may apply to sit for an examination set by the Board of Governors. Holders of the L.D.S. degree and other graduates must present their credentials to the Registrar; and, if these are acceptable, they must have personal interviews with the Committee on Admissions. Basic science examinations in anatomy, bacteriology, biochemistry, pathology and physiology are held. Successful candidates are admitted to a six-week period of practical examination.

(d) APTITUDE TESTING

XVII-10. At the suggestion of the Council on Education of the Canadian Dental Association, the Division of Dental Research of the Faculty of Dentistry, University of Toronto and the Educational Research Department of the Ontario College of Education have been investigating the aptitude testing of potential dental students. Specifically the value of high school grades, manual tests and psychological battery tests as predictors of success at dental school are being investigated.

XVII-11. There is only a very low correlation between the academic ability and the technical ability needed for a successful dental student. Thus selection of dental students purely on the basis of high school academic achievement is likely to lead to selection of some students with insufficient manual ability to succeed in the clinical areas of the curriculum. Experimentation with manual carving exercises and differential aptitude tests and factor analysis of the results indicate that the high school grades should be supplemented by some direct tests of mechanical reasoning or spatial relations which are strongly correlated to

the dental student's grades in technical subjects.

XVII-12 Development of tests for mechanical ability are also
felt to be important to the selection of dental auxiliaries such
as dental hygienists.

COST OF EDUCATION TO STUDENTS

- XVIII - 1 University expenses including tuition and incidental fees, textbooks and supplies, cost the dental student on the average \$3600 for his four year course. Room and board expenses vary considerably depending upon the location of the school and whether there is a student residence. They average \$2800 - 3000 for the four years.
- XVIII - 2 Predental expenditures vary according to the school and the number of predental years required. Median expenditure for both predental and dental years combined is \$7700 while the mean is \$8400.
- XVIII - 3 These amounts do not include transportation, clothing, expenditures for health and personal care, etc.

Table XVIII - 1 COST OF DENTAL EDUCATION TO STUDENTS

Item of Expense	Range of Expense	Average Expense	
		Median	Mean
	\$	\$	\$
Dental school expenses	5600 - 8400	6400	6600
university expenses	3200 - 4000	3600	3600
room and board	2300 - 5000	2800	3000
Expenses including predental years*	6500 - 11700	7700	8400

* information available for only five schools.

SOURCE: Information from the deans of the faculties of dentistry.

RECRUITMENT OF STUDENTS AND
PLACEMENT OF GRADUATES

XIX.1. Two major problems facing Canadian dentistry's efforts to improve the supply and distribution of dentists are the recruitment of students and placement of graduates. An adequate supply of highly qualified applicants to dental schools must be recruited each year. New dental graduates must be encouraged to settle in those areas that are most in need of dentists. To quite some extent the problem of placement is related to that of recruitment.

(a) RECRUITMENT BY THE PROFESSION

XIX.2. A recruitment program must enjoy a position of top priority within the organizational affairs of the dental profession. While a national body should be the driving force in creating and implementing a comprehensive program, it is vital to the success of such efforts that provincial and local dental organizations, and, most importantly, individual dentists, in their own enlightened self-interest, be active and aggressive participants.

XIX.3. With these thoughts in mind, the Board of Governors of the Canadian Dental Association at its Annual Meeting in September 1960 recommended that a national committee be formed. The Association's Council on Education therefore established the National Recruitment Committee, consisting of five members representing the main geographic regions of Canada. The Association's Director of Public Information was appointed the committee's permanent secretary in order to give force and effect to the developed policies, programs and projects of the committee and to provide a regular and systematized follow-up.

XIX.4. At its first meeting in January 1961, the National Recruitment Committee developed a detailed national recruitment program to be effective at national, provincial and local levels of dental organizations. A survey taken prior to the first meeting of the national committee showed that only two provinces had reasonably comprehensive recruitment programs functioning. By October 1961, seven provincial recruitment committees had been activated.

XIX.5. One of the first assignments undertaken by the national committee was a national survey of dentists' attitudes toward recruitment. As a result of this survey, the old idea that dentistry is a closed corporation can be laid to rest. Dentists are interested in increasing their own numbers. They believe they have a responsibility to recruit new members to their profession. Survey replies show that over 91 per cent of Canada's dentists believe there is a general national shortage of dentists. More than 80 per cent are willing to encourage suitable young people to consider dentistry as a career. On the basis of this evidence of support, the national recruitment program is moving forward.

XIX.6. Through the headquarters of the Canadian Dental Association, the National Recruitment Committee has made available a considerable store of material to be used in promoting recruitment efforts. Films, film strips, pamphlets, booklets, a recruitment information kit, a recruitment manual for local dental societies, background statistical data and other materials are either available or are being developed. On recommendation of the committee, the Canadian Dental Association has become a sponsor of the Canadian Science Fairs Council. This council promotes national regional and local science fairs in Canada in order to stir and maintain the scientific interests of high school students and encourage young people to consider careers in scientific fields.

(b) RECRUITMENT OF WOMEN STUDENTS

XIX.7. The supply of qualified male applicants may not be sufficient to meet future needs for dental personnel in this country. Since women constitute the largest untapped reserve of potential dental students, the dental profession believes that

more efforts should be made to interest women in the study of dentistry.

XIX.8. In many countries the percentage of women dentists is high.

Table XIX.1. PERCENTAGE OF DENTISTS WHO ARE WOMEN, 1958

Country	Per Cent <i>%</i>
Lithuania	96
Latvia	93
Finland	80
Russia	71
Greece	50
Denmark	40
Israel	29
France	25
Sweden	25
Norway	23
Netherlands	15
West Germany	13
Belgium	10
Japan	10
Switzerland	10
Luxembourg	8
Great Britain	8
Italy	6
Australia	5
Austria	4
Mexico	3
Canada	2
South Africa	1
New Zealand	1
United States	1

SOURCE: The Final Report of the Survey of Dentistry, Commission on the Survey of Dentistry in the United States, American Council on Education, Washington, D.C., p. 528.

XIX.9. The percentage of women in dentistry is lower than the percentage for those in most other professions in Canada. In 1951, when the percentage of female dentists was the same as it is today, other professions, with the exception of engineering, had a higher proportion of women members.

Table XIX.2. PERCENTAGE OF PROFESSIONAL PEOPLE WHO WERE WOMEN, BY PROFESSION, 1951

<u>Profession</u>	<u>Per Cent Women</u> %
Actuaries	8.9
Accountants	4.9
Physicians and Surgeons	4.8
Architects	2.5
Lawyers	2.2
Dentists	1.5
Engineers	.1

SOURCE: Census of Canada, 1951, Volume IV.

XIX.10. The question of whether it is worthwhile to train women dentists is bound to arise. The time and money devoted to their education is largely wasted if they do not practise for a reasonable period following graduation.

XIX.11. A survey of women dentists in the United States⁽¹⁾ showed that 65 per cent worked full-time, 24 per cent part-time and 11 per cent were retired; 53 per cent of the respondents had spent all years since graduation in full-time practice. The average number of years since graduation of respondents educated in the United States was 23.1. "Of these, 17.1 years were spent in full-time professional work, 3.7 in part-time, and 2.3, not in practice. The average number of years between the time of graduation and the time of termination of practice of the ... women who were retired or inactive and not expecting to return to practice was 27 years."⁽²⁾

(1) Talbot, N.S., 'Women in Dentistry', Journal of Dental Education, March 1961, pp.11-20.

(2) Ibid.

(c) ORIGIN OF STUDENTS AND DESTINATION OF GRADUATES

XIX.12.

The size of community a dental student comes from and the size of community he settles in as a graduate dentist are related. A 1960 study of University of Toronto graduates from 1931 to 1960⁽¹⁾ revealed that 43 per cent of students from communities of under 10,000 population return to similar sized communities. But this 43 per cent represents two-thirds of all those returning to practise in these communities. Only eight per cent of dentists from communities of over 100,000 settle in communities of under 10,000.

Table XIX.3. PERCENTAGE DISTRIBUTION OF DENTAL GRADUATES BY SIZE OF COMMUNITIES OF ORIGIN AND PRACTICE.

Size of Community of Origin	Size of Community where Practising		
	under 10,000	10,000-100,000	over 100,000
	%	%	%
under 10,000	43	28	29
10,000-100,000	13	68	19
over 100,000	8	12	80

SOURCE: Division of Dental Research, Faculty of Dentistry, University of Toronto. Unpublished data.

XIX.13.

Fewer students are coming from the smaller communities than could be expected on the basis of population. A correspondingly greater percentage come from cities of over 100,000. The communities of under 10,000 are receiving only about half the number of graduates they should in relation to their population.

(1) Division of Dental Research, Faculty of Dentistry, University of Toronto, unpublished data.

Table XIX.4. PERCENTAGE OF DENTISTS BY COMMUNITIES OF ORIGIN AND PRACTICE COMPARED WITH DISTRIBUTION OF POPULATION

	Size of Community		
	under 10,000	10,000- 100,000	over 100,000
	%	%	%
Population			
Canada	46	15	39
Ontario	35	22	43
Origin of students	29	20	51
Place of practice	19	28	53

SOURCE: Division of Dental Research, Faculty of Dentistry, University of Toronto, unpublished data.

XIX.14. It is obvious that the best way to increase the number of dentists settling in rural areas is to recruit more dental students from these areas. An example of a program devised with this thought in mind is that of the Dental Public Health Committee of the Ontario Dental Association. This committee undertook a special project in 1960-61 to recruit students from the smaller towns and cities of eastern Ontario. Lists of students with academic standings of 70 per cent or better were obtained from high school teachers. These students were invited to dinners given by the local dental societies. The dentist-organizer of this plan attended these dinners and spoke to the students on advantages of careers in dentistry. Committees composed of representatives of the local dental societies, high school principals and guidance teachers selected those students who seemed most interested in dentistry. Forty-three students from Grades XI, XII, and XIII were invited to visit Toronto on a chartered bus trip beginning at Pembroke, Ontario. In Toronto, they spent parts of two days touring the Dental Building of the University of Toronto. The students were billeted in the homes of Toronto dentists for the night.

XIX.7.

XIX.15. Of the 11 Grade XIII students in the group, six applied to and five were accepted by the Faculty of Dentistry in 1961. A follow-up of the group is being maintained.

XIX.16. This year the committee is conducting a similar program beginning in the Bruce Peninsula area of Ontario.

(d) FINANCIAL AID TO STUDENTS

XIX.17 Scholarships, bursaries, and loans are available to dental students through all universities. Only the universities of Toronto and Manitoba offer scholarships or fellowships to graduate dentists, but National Health Grants provide some assistance for post-graduate education.

XIX.18. Student loans and bursaries are available to dental students as to other university students through provincial Departments of Education. The terms of the loans usually involve repayment commencing in the year following graduation. The loans bear interest at varying rates. It is not known how many dental students have been assisted by these loans and bursaries. Alberta awarded 52 grants and loans to 34 dental students during the 1960-61 term. The average amount received was \$536. Financial assistance was received by 51 per cent of Alberta residents enrolled in the Faculty of Dentistry at the University of Alberta.

Table XIX.5. PROVINCIAL GOVERNMENT ASSISTANCE TO DENTAL STUDENTS, ALBERTA, 1960-1961

Type of Assistance	Number Given	Amount	
		Total	Average
		\$	\$
Scholarships	7	3,450	493
Grants	25	6,225	249
Loans	27	8,560	317

XIX.19. Also in the year 1960-1961, 33 dental students from British Columbia received bursaries totaling \$3,855. The

number of student aid loans made to dental students is not known.

XIX.20. Since the Saskatchewan loan fund began operating in 1949, 40 dental students have received loans totaling \$41,030.

XIX.21. Several provinces have special bursary programs for training dentists. Examples of these programs are given below.

Newfoundland

XIX.22. The provincial government grants bursaries of \$1,200 a year for the four dental years. Recipients sign contracts to serve for two years in rural areas of Newfoundland designated by the Minister of Health. They work in a part-time capacity for the dental public health program. An additional two years of service is spent anywhere in the province. They are given additional assistance in renting and equipping their offices, and are paid up to \$3,600 per year for working half-time for the school dental service. The scheme has been fairly successful, but in several cases obligations have not been fulfilled.

Manitoba

XIX.23. Manitoba has a program of bursaries for dental students. The number granted during the last three terms have been as follows.

Table XIX. 6. NUMBER OF BURSARIES GRANTED TO MANITOBA DENTAL STUDENTS, 1958-1960.

<u>Term</u>	<u>Number of Bursaries</u>
1958-59	23
1959-60	19
1960-61	12

XIX.24. Students need not be residents of Manitoba. The bursaries are granted to students of all four years, providing the recipient agrees to serve one year either on the staff of the dental section of the Department of Health and Public Welfare or in practice in rural Manitoba for each year the bursary is received. Selection

of students to receive bursaries is made by a committee composed of the Minister and Deputy Minister of Health, the Deans of Medicine and Dentistry and the provincial psychiatrist. The program has been reasonably successful.

Saskatchewan

- XIX.25. In 1959, the province of Saskatchewan inaugurated a program of bursaries for dental students attending any recognized school of dentistry. Four bursaries of \$1,000 each are available to students in their final year.
- XIX.26. By the terms of the bursary, the recipient must sign an undertaking to operate a private practice for the two years immediately following graduation in some area of the province other than the five major urban centres.
- XIX.27. Selection of recipients is made by a committee composed of members of the College of Dental Surgeons of Saskatchewan and the provincial Department of Public Health. While this program has been operating only a short time, it does not seem that it will achieve its objective of attracting more dentists to the rural areas.

The Dental Officers' Subsidization Plan

- XIX.28. For dental students who are willing to serve with the Royal Canadian Dental Corps five years following graduation, the Department of National Defence offers financial subsidization of training. University fees are paid, instruments and supplies are provided, and \$75 granted for textbooks. The enrollee receives \$128 per month for his first two years of university, \$300 per month for the final two years (\$375 if he is married), and full pay during the summer. In addition, he has 30 days paid leave each year and free medical and dental care.

DENTAL SCHOOLS

(a) SURVEY OF DENTAL SCHOOLS

XX.1. In 1950, the Council on Education of the Canadian Dental Association set up a survey committee of three members consisting of two practising dentists and one professional educator, Dr. A.C. Lewis, former dean of the Ontario College of Education. The committee was to visit the dental schools for the purpose of encouraging the highest possible standards of dental education in Canada. The committee visited each of the five schools three times in alternate years beginning with the session 1950-51. The committee endeavoured to ascertain the schools' progress in meeting the Council on Education's minimum requirements for the approval of dental schools. Factors considered in the evaluation of schools are:

- admission standards
- course of instruction
- subjects of study, instruction and examinations
- hospital relationship
- relationship between faculties of dentistry and medicine
- faculty staff
- university relationship
- financial administration and support
- building and equipment
- library.

XX.2. During the 1950-51 visit of the survey team total capacity for the five schools was 218 per undergraduate class. The youngest of the dental schools was Alberta which was established in 1925. There was no expansion of facilities for dental education across Canada for the next 25 years; and this at a time when the

population of Canada was growing rapidly. The need for adequate dental services was becoming increasingly acute. Accordingly, efforts were made by the Council and the Committee to encourage the schools to expand, and also to promote the establishment of new schools. Some measure of success was achieved.

(b) PRESENT FACILITIES

XX.3. In 1960-61 the schools were again visited by the Committee which reported that:

- (i) at Alberta the floor space and facilities were greatly expanded to permit an annual enrolment of 55 dental students and 20 dental auxiliaries;
- (ii) at Dalhousie a new dental building was erected to accommodate 25 dental students per year, and also provision was made for training dental hygienists;
- (iii) at McGill completely new equipment and a new dental clinic were installed in the new general hospital;
- (iv) at the University of Montreal new equipment was obtained but there was no increase in facilities;
- (v) at Toronto a new building and equipment were provided capable of accommodating 125 dental students and 50 dental hygienists per year; furthermore ample space was provided for research and graduate study;
- (vi) at the University of Manitoba a faculty of dentistry was established and a new school was erected which provided for the training of 30 dental students per year and a number of dental auxiliaries.

XX.4. The normal annual intake of the six schools is now 338 freshman students.

XX.5. The effect of the retarded growth in dental schools has been evident in the worsening dentist to population ratios. While

population increased 6,900,000 between 1939 and 1961, the annual number of dental graduates rose only from 115 to 174.

XX.6. Even when currently slated expansion programs are completed, Canada will have only one graduate for every 50,000 members of the population while the highly dental-health-conscious countries of Sweden and Norway will have one graduate for every 22,000 and 24,000 people respectively.

Table XX.1. CAPACITY OF CANADIAN DENTAL SCHOOLS 1952-1961

Year	Capacity						
	Dental School						
	Total	Dalhousie	McGill	Montreal	Toronto	Manitoba	Alberta
1952	202	12	35	60	65		30
1953	202	12	35	60	65		30
1954	202	12	35	60	65		30
1955	202	12	35	60	65		30
1956	205	12	38	60	65		30
1957	205	12	38	60	65		30
1958	263	25	38	60	80	30	30
1959	307	25	38	60	124	30	30
1960	327	25	38	60	124	30	50
1961	338	25	40	60	125	33	55

(c) EXPANSION PROGRAMS

XX.7. Only the University of Montreal has definite plans to increase its capacity in the future. Its expansion program would allow for 15 more graduate dentists a year. Dalhousie would like to expand in the future, but no definite plans have been made.

(d) FULL AND PART-TIME STAFF

XX.8. The information in this and the following section was obtained from the deans of the six dental schools on a confidential basis. For this reason, code letters rather than names have been assigned in the next three tables.

XX.9. Canadian dental schools employ the following academic staff members:

74 full-time
 13 half-time
 283 part-time.

They have received approval to engage an additional five full-time and ten part-time members. Additional requirements which have not yet been approved are:

11 full-time
 2 half-time
 15 part-time

Table XX.2. RATIO OF FULL-TIME AND PART-TIME ACADEMIC STAFF TO DENTAL UNDERGRADUATES, 1961

Dental School Code Letter	Ratio	
	Full-time*	Part-time
A	1: 4.5	1:11.9
B	1:14.3	1: 3.9
C	1: 8.6	1: 2.3
D	1:10.8	1:10.1
E	1:22.6	1: 4.0
F	1:21.4	1: 1.7

* Half-time staff members have been counted as half a full-time staff member.

XX.10. All schools report difficulty in obtaining academic staff, varying from "some" to "tremendous". This is no doubt due to a lack of trained personnel and/or sufficient funds.

(e) FINANCING

XX.11. The amount of money available to operate Canada's six dental schools is in the neighbourhood of \$2,400,000 per annum. This sum is not adequate: three of the six schools report that their finances are inadequate while two others would qualify the adequacy of their funds.

TABLE XX. 3. PER STUDENT AMOUNT OF MONEY AVAILABLE FOR OPERATION OF DENTAL SCHOOL, 1961-1962.

Dental School Code Letter	Per Student Amount*
	\$
A	4,355
B	2,229
C	4,228
D	2,035
E	1,977
F	1,067

* Strict comparisons between schools are not possible as some schools exclude certain specific items from their budgets while others do not.

XX. 12. The majority of schools list the source of their funds as "general university funds" although some specify such sources as clinic income, fees, and various association, foundation, and government grants.

Table XX. 4. PER CENT OF TOTAL BUDGET ALLOCATED TO ACADEMIC AND NON-ACADEMIC SALARIES

Dental School Code Letter	Per Cent Budget Allocated to Staff		
	Academic	Non-academic	Both
	%	%	%
A	61.8	25.4	87.2
B	56.2	24.4	80.6
C	49.0	11.2	60.2
D	65.9	19.7	85.6
E	53.7	34.2	87.9
F	72.5	12.1	84.6

(f) FUTURE RESOURCES POSSIBLE WITH PRESENT TRAINING FACILITIES

XX. 13. If present training facilities are fully utilized, Canada's dental manpower can be estimated in terms of the expected survivals from present dentists plus the expected survivals from future graduating classes.

XX. 14. The number of dental graduates per year can reach a maximum of 338 in 1965, providing classes in recently expanded colleges can be kept completely filled. This, of course, is

highly unlikely. In addition, not all 338 graduates will be available for Canada since some foreign students are trained in Canada and since some graduates do not maintain residence in Canada after graduation. However, some Canadian dentists are educated in the United States and some dentists emigrate to Canada. The figure 338 therefore, has been used to represent the maximum.

XX. 15. By applying the Commissioner's Standard Ordinary Mortality Survival Rates to the age distribution of Canadian dentists in 1960 and the age distribution of expected graduating classes⁽¹⁾ through the years to 1980, the future dental manpower was projected.

Table XX. 5. ESTIMATED DENTAL MANPOWER,
CANADA, 1962-1980.

Year	Number of Dentists
1962	6,000
1963	6,200
1964	6,300
1965	6,500
1966	6,700
1967	6,900
1968	7,100
1969	7,300
1970	7,500
1971	7,700
1972	7,900
1973	8,100
1974	8,300
1975	8,500
1976	8,700
1977	8,900
1978	9,100
1979	9,200
1980	9,400

XX. 16. By integrating estimates of population and dental manpower, dentist/population ratios for the years 1965 to 1980 are estimated.

(1) Based on the age distribution of University of Toronto 1960 graduates.

Table XX. 6. PROJECTED POPULATION PER DENTIST, CANADA, 1965-1980

Year	Population per Dentist	
	Low Population Estimate	High Population Estimate
1965	3,000	3,100
1970	2,800	3,000
1975	2,700	2,900
1980	2,700	2,900

XX. 17. If the present training facilities are used at maximum capacity and if the number of emigrating and immigrating dentists is equal, the population per dentist will not be much better in 1980 than at the present time.

(g) TRAINING FACILITIES NECESSARY TO IMPROVE THE DENTIST/POPULATION RATIO

XX. 18. Canada's dental manpower is low compared to most other countries of similar socio-economic status and dental health appreciation. Even without knowledge of treatment level desired, it is safe to assume that the number of Canadian dentists should be increased to a population to dentist ratio closer to that of the United States which is 1,900 compared to Canada's 3,000. However, the current shortage of dentists will continue in the future unless marked increases are brought about in the future number of dental graduates.

XX. 19. If it were immediately decided to increase the number of new graduates in order to improve the population to dentist ratio in Canada no increased classes could be graduated before 1968. This is because at least two years would be needed to plan and build new schools and then four more years would have to pass before the new schools could graduate their first classes. The impact of enlarged future graduating classes on the manpower ratio would continue to be slight until a sizeable alumni could accrue from the new institutions. The simplest way to judge the practicability of increasing the number of dental graduates by

expanding teaching facilities is to calculate the effect of various increases in graduates after 1968 on the ratio in 1980.

XX.20.

The average of high and low dentist/population ratios projected for 1980 is $1/2800$; the estimated number of dentists in 1980 is 9,400. To equal the U.S.A. ratio of $1/1900$, a dental labour force of 14,100 would be required in 1980. An additional 4,700 dentists would have to be graduated in the 12 years from 1968 to 1980. If more modest decreases of 25 or 10 per cent in the population served by each dentist were aimed at, the number of additional dentists required by 1980 would be 2,400 and 400 respectively.

XX.21.

A rough estimate of the number of graduates needed each year to produce the above additions to the labour force is sufficient to emphasize the enormous need for more dental schools. (1) To equal the United States' ratio by 1980, 397 more dental graduates would be necessary per year from 1968 to 1980. To reduce the present ratio by 25 per cent, 203 more would be necessary; a 10 per cent reduction would necessitate 34 more graduates each year. Even this last figure represents a 10 per cent increase in the current capacity of dental schools.

(1) Assuming all graduates in a new class have an average age of 27.5 years and using an average survival rate from 25 to 40 years of .9979, the number of graduates surviving out of a class size X would be; No. of survivals = X
 $[.9979 + .9979^2 + .9979^3 \dots .9979^{12}] = X [11.8362]$.

LICENSURE AND CERTIFICATION

(a) REQUIREMENTS FOR LICENSURE

(i) Citizenship

XXI-1. Quebec requires that candidates for licensure be Canadian citizens. Citizenship or intention to become a Canadian is required by Alberta, Ontario, New Brunswick and Prince Edward Island. In the latter, the candidate must have resided in Canada for at least one year immediately prior to application. No regulations exist in the other provinces.

(ii) School of Graduation

XXI-2. All provinces except Quebec will accept for licensure examination, graduates of any school on the approved list of schools of the Council on Education of the Canadian Dental Association. Quebec accepts only graduates of Canadian schools. Newfoundland will accept graduates from outside Canada and the United States. Ontario accepts holders of the B.D.S. from the United Kingdom, Australia and New Zealand as well as holders of the Fellowship in Dental Surgery of the Royal College of Surgeons of England and Edinburgh. Manitoba, Saskatchewan, Alberta and British Columbia will also accept B.D.S. holders from the U.K., Australia and New Zealand. The other provinces will not.

(iii) National Dental Examining Board Certificate

XXI-3. Holders of this certificate are accepted without further examination by all provinces except Quebec. In Quebec, acceptance of the certificate is pending amendment to the regulations pursuant to the provincial dentistry act.

(iv) Interim Licenses

XXI-4. Newfoundland, Quebec, Saskatchewan and British Columbia will issue temporary permits under conditions such as intention to sit for the next provincial licensing examinations.

(v) Fees

XXI-5. The initial registration fee varies from \$25 to \$500. Annual licensure fees vary from \$5 to \$150.

(b) NATIONAL DENTAL EXAMINING BOARD

XXI-6. The National Dental Examining Board of Canada was incorporated under federal statute in 1952. All ten provinces subscribed to the Board's By-laws and Regulations. Each provincial dental licensing body appoints one representative to the National Dental Examining Board. The Council on Education of the Canadian Dental Association appoints two representatives, thus making up the total of twelve members of the board. The secretary-registrar is not a member of the board but is a permanent official.

XXI-7. The chief purpose of the board is to conduct voluntary examinations at the national level that are at a level as high as or higher than any dental school in Canada. The certificate granted to successful candidates fulfills the academic requirements of licensure to practise dentistry in the agreeing provinces.

XXI-8. Candidates for the national examinations must have two qualifications:

- an enabling certificate from a provincial dental licensing body;
- graduation from a dental school approved by the Council on Education of the Canadian Dental Association.

Table XXI - 1 REQUIREMENTS FOR DENTAL LICENSURE

	Nfld.	P.E.I.	N.S.	N.B.
Canadian Citizenship Required	No	Yes or resident intent	No	Yes or intent
Accept Graduates of Schools on C.D.A. List	Yes	Yes	Yes	Yes
Accept from Schools Outside U.S. and Canada	Yes	No	No	No
Recognize N.D.E.B. Certificate	Yes	Yes	Yes	Yes
Grant Interim Licenses	Yes	No	No	No
Fees:				
(a) Licensure Exam	\$15	Varies	\$100	\$100
(b) Registration	\$50	\$50 resident, \$100 non-resident	\$50 \$100 non-Canadian \$150 grad. 5 years + \$300 non-Canadian Grad. 5 yrs. +	\$100 (including annual fee)
(c) Annual	\$5	\$55	\$65	\$60
(d) Re-examination	\$5 per paper	None	\$100	None
(e) Re-instatement	\$50	\$15	\$20	out-standing fees plus \$25

	P.Q.	Ont.	Man.	Sask.	Alta.	B.C.
	Yes	Yes or intent	No	No	Yes or intent	No
	Canadian only	Yes	Yes	Yes	Yes	Yes
	No	Some	Some	Some	Some	Some
	No	Yes	Yes	Yes	Yes	Yes (fee \$500)
	Yes	No	No	Yes	No	For area where need urgent
	\$200	\$100	Univ. sets	\$75.	\$100	\$100
	\$25	\$100	\$100	\$100	U. of A. grads \$50 others \$100	\$200 (except N.D.E.B. holders)
	\$75	\$75	\$100	\$150	\$100	\$125
	\$20 per paper	None	\$100	Univ. sets	\$10 per paper	\$100
	\$10	\$25	current fees	current fees plus \$10-\$25	current fees plus \$10	current fees

XXI-9. Examinations of the board are held yearly in June.
There is also provision for fall examinations at the discretion
of the board. All examinations are held at university centres.

(c) SPECIALIST CERTIFICATION

XXI-10. "A specialist in dentistry is a graduate dentist who,
through approved study and practice, attains expert knowledge
and skill in a special field and who limits his practice to that
special field." (1) All provinces except Newfoundland, New
Brunswick and Nova Scotia certify specialists. Certification
is granted in oral surgery, orthodontics and periodontics by
seven provinces, in paedodontics, by three, public health and
prosthodontics, two, oral diagnosis and restorative dentistry,
one.

XXI-11. Establishment of a Royal College of Dentists under
federal legislation has been proposed by the C.D.A.'s Special-
ists and Specialization Committee. This body will serve to
establish and maintain at a national level high standards in the
designated specialties.

(1) Transactions, Canadian Dental Association, 1960, p. 220.

Appendix XXII-1.

CONTINUING EDUCATION OF THE DENTAL PROFESSION IN CANADA

XXII-1. Dr. G.V. Black once observed, "Every professional man has no right to be other than a continuous student." This edict becomes more compelling as the volume of knowledge expands and new concepts of dental science are developed.

XXII-2. Many opportunities are available to-day for members of the dental profession to continue their education throughout their careers. A review of the programs available in Canada for the continuing education of the dentist, involves consideration of courses leading to post-graduate and graduate degrees, courses of short duration, extension courses and seminars, study clubs, scientific programs, library facilities and a miscellany of opportunities to keep abreast of new developments.

XXII-3. The Canadian dental schools present a limited roster of full-time courses leading to specialization and research careers. These offerings are limited because of the shortage of personnel trained to give advanced instruction and because of financial limitations. The need for support at this level is great. It is vital to the supply of dental teachers who are urgently needed by expanding enrolment in the dental schools of the country.

Table XXII-1. APPROXIMATE CURRENT CAPACITY FOR TRAINING SPECIALISTS

Specialty	Length of Course	Number of Schools	Annual Output
Oral surgery	3 years	2	1
Orthodontics	2 years	2	10
Periodontics	2 years	1	2
Paedodontics	2 years	1	2
Prosthodontics	1 year	1	2
Dental public health	1 year	2	10-16

XXII-4. Preparation for research careers is being undertaken by a small group each year in most of the dental schools.

- XXII-5. Short refresher courses of one day, two days and five days provide an opportunity for practising dentists to learn about new developments in the science and practice of dentistry. In the session 1961-62, four schools are offering a series of 20 courses with an enrolment limit of approximately 250 graduates for the series.
- XXII-6. The above programs are dependent upon the willingness and the ability of the dentist to leave his practice and journey to the locale of the course. Extension lectures and extramural clinics, however, make continuing education available to dentists in their immediate vicinity. The teacher comes to the student. For example, in one province approximately 1,200 dentists attend sessions of this nature each year made available through the cooperative effort of the licensing authority and the dental school in the province. Other provinces have similar programs.
- XXII-7. A few years ago seminars of one and two days' duration were made available in one province through a National Health Grant. These were most successful because they brought continuing education to the dentist's doorstep. Limitation of funds restricted the development of this most valuable form of continuing education. Along the same line, one of the western provinces provides a series of three day seminars on the subject of preventive orthodontics. These seminars are given each year in five different centres in the province. In another western province, the professional organization, with assistance from a professional training grant, sponsors annual post-graduate seminars in Dentistry for Children and Implications of Dental Public Health Programs for Children. A lecturer well qualified in these subjects is invited to come to the province annually.

XXII-8. Participation in study clubs by members of the profession is currently widespread across Canada. A complete list of these study groups is not available, nor are figures relating to their membership but some examples of study clubs in one Canadian city are the:

Periodontia Study Club
Crown and Bridge Study Club
Prosthodontia Study Club
Gold Foil Study Club
Pedodontia Study Club
Oral Diagnosis Study Club
Endodontic Study Club
Occlusal Study Club

XXII-9. There are at least six annual provincial or regional dental conventions held across Canada each year, in addition to the Canadian Dental Association's Annual Meeting. The scientific sessions provided by each of these meetings embrace the full scope of the practice of dentistry.

XXII-10. A half dozen Canadian dental journals publishing scientific papers or abstracts and extensive collections of books in the Canadian Dental Association Library and the library facilities of the six dental schools are available to the profession.

XXII-11. To supplement the opportunities outlined above, many Canadian dentists each year avail themselves of courses, conventions and literature in the United States.

EDUCATION OF AUXILIARY PERSONNEL

(a) DENTAL HYGIENISTS

- XXIII. 1. Dental hygienists are at present being trained at the Faculties of Dentistry of Dalhousie University and at the Universities of Toronto and Alberta.
- XXIII. 2. The Toronto training program was the first of its kind in Canada. It began in September 1951 with enrolment limited to approximately 12 students per class. The other schools accepted their first hygienist classes in September 1961. The course at the University of Alberta was initiated to train hygienists (called "dental auxiliaries") who will serve with dental health teams in local health units.
- XXIII. 3. When the total capacities of these three programs are reached a potential 92 hygienists will graduate each year. The present enrolment in these classes is as follows.

Table XXIII. 1. ENROLMENT IN DENTAL HYGIENE COURSES AT CANADIAN DENTAL SCHOOLS, 1961-1962

Dental School	Year	
	1st	2nd
Dalhousie	8	
Toronto	41	16
Alberta	20	
Total	69	16

- XXIII. 4. The universities of Manitoba and Montreal are both contemplating programs for hygienists. The earliest possible date of establishment at Manitoba would be September 1962, and the faculty hopes that a class of 15 or 20 might be enrolled. The University of Montreal would like to initiate its hygienist program within the next three or four years. It would enroll 10 to 12 hygienists annually.

XXIII.5. University entrance requirements must be met by applicants for the dental hygiene courses. Only female students are accepted at Toronto. At Alberta, the course is open to men.

XXIII.6. The total cost of the course to the students varies from \$900 to \$1,100 exclusive of living costs. Students enrolled in the University of Alberta course are eligible to receive financial assistance from the Government of Alberta. This consists of a \$75 a month subsistence allowance, tuition fees and a book allowance of \$25. National Health Grants are also used to assist hygienists-in-training.

Table XXIII.2. COST OF TWO YEAR DENTAL HYGIENE COURSE PER STUDENT, TO STUDENT AND TO SCHOOL

Approximate Cost	Dental School		
	Dalhousie	Toronto	Alberta
To student	\$1130	\$900	\$1100
To school	2140*	1400	3500

* This is the anticipated cost once the class has reached its maximum capacity of 12 students.

XXIII.7. The course comprises two academic sessions each of approximately eight months. The curriculum includes such subjects as:

- anatomy and physiology
- dental anatomy
- histology
- chemistry
- bacteriology
- pharmacology
- pathology
- English
- psychology
- sociology
- nutrition
- radiology
- preventive dentistry
- dental public health
- public education in dental hygiene
- dental prophylaxis
- office assistance and administration
- first aid.

(b) DENTAL ASSISTANTS

- XXIII. 8. A one year course for the training of dental assistants was established by the Royal College of Dental Surgeons of Ontario in 1919. It continued in existence at the Faculty of Dentistry, University of Toronto until 1958-1959. At this time, the university increased admission requirements to a level which was approximately the same as that for the course in dental hygiene. As a result of this, the number of applications was so limited that continuation of the course did not seem justified.
- XXIII. 9. To fill the need for training of dental assistants, the Royal College of Dental Surgeons of Ontario, in co-operation with the Academy of Dentistry, Toronto, developed a pilot evening course program. This course provided 88 hours of instruction and included theoretical and practical examinations. The first class of 20 students was conducted in Toronto during 1960-61. In the 1961-62 session, similar courses are operating in six other Ontario centres.
- XXIII. 10. The University of Manitoba conducts a 40 hour evening course for 30 dental assistants. In Alberta, evening courses in Calgary and Edmonton and a correspondence course for smaller centres are planned.
- XXIII. 11. There are, however, no formal training courses for dental assistants in Canada. A survey of 201 dental assistants revealed that 127 of them had been trained entirely by on the job training in dental offices.⁽¹⁾ The possibility of establishing an assistants' training program in a technical school has been mentioned in Alberta.

(1) McCutcheon, J., 'Manpower in Dentistry - The Dental Assistant', Journal of the Canadian Dental Association, Vol. 27, No. 1. 1961, p. 9.

(c) DENTAL TECHNICIANS

XXIII. 12. While legislative authority exists to examine, register and license technicians in six provinces, there is no formal training program provided anywhere in Canada. Employment in a dental laboratory or by a dentist is the only means by which the competence necessary to satisfy the licensing requirements can be acquired.

XXIII. 13. Generally, candidates for licensure must have obtained certain educational qualifications, experience and satisfactory standing in examinations. Details of provincial requirements are given below:

New Brunswick

XXIII. 14. A short apprenticeship with a registered technician is required.

Quebec

XXIII. 15. Requirements include Junior Matriculation or its equivalent, five years experience with a dentist or dental technician, theoretical studies given in special courses and the passing of annual examinations.

Ontario

XXIII. 16. Applicants for licensure must have served in Ontario for four years with a dentist or technician, and must have passed the annual examinations conducted by the Governing Board of Dental Technicians.

Saskatchewan

XXIII. 17. A minimum of four years' service in Saskatchewan with a technician and pass standing in the examinations are required.

Alberta

XXIII. 18. No educational qualifications have been required; but in the future, examinations will be held. A training program for technicians in a technical school is being considered.

- XXIII.19. The dental mechanics, who are able to work directly for the public, must have Grade XII education and five years practical experience in denture construction. They can then sit for a practical and theoretical examination based on a prescribed program of studies. Re-examination at any time may be required.

British Columbia

- XXIII.20. High school graduates may become Registered Apprentices to a dental technician. Five years experience and successful standing in the examinations qualify them to become Registered Technicians (Junior Grade). Three more years of service under the supervision of a Registered Technician (Senior Grade) qualifies a technician for this latter designation.

DENTAL RESEARCH

(a) DEVELOPMENT OF DENTAL RESEARCH IN CANADA

XXIV-1

The dental profession, realizing the need for research in Canada, took the first step toward the establishment of a program in 1920 by setting up the Canadian Dental Research Foundation. Money for the Foundation was donated by dentists and dental organizations across the country as a memorial to dentists who had died during the 1914-18 war. In 1950, the Research Committee (now the Council on Research) of the Canadian Dental Association was named as the Board of Directors of the Foundation, thus establishing a sound and useful liaison between the Foundation and the Association. The annual income of the Foundation is distributed by its directors to support dental research.

XXIV-2

At the time the Foundation was established (1920), dental research in Canada was almost non-existent; and what little research was undertaken was limited to one school. ⁽¹⁾ This situation continued for many years, due largely to the lack of properly trained research workers. To correct this situation the Canadian Dental Association, in 1944, provided funds for fellowships (known as C.D.A. Studentships) to assist dentists to obtain training for a research career. The Association has continued an annual allocation for this purpose, and these funds are administered by the Council on Research. Studentships have helped to support 24 dentists for graduate study, of whom 18 either have served or are now serving on the staff of a Canadian dental school. Studentship funds are also used for reprint purchase and for travel. The total amounts granted are shown in Table 1 and the amount for student support in Table 2.

(1) Gies, W.J. Dental Education in the United States and Canada, Carnegie Foundation for the Advancement of Teaching, Bulletin Number Nineteen, New York, 1926.

XXIV-3.

One year after the Canadian Dental Association began to grant funds for research (i.e. in 1945), the National Research Council of Canada established the Associate Committee on Dental Research to advise the Council on research grants for dentistry. This source of research support is now the largest in the country (see Table 1.). National Research Council funds not only provide fellowships, but also support for research projects through grants-in-aid. Recently a type of award has been established which will furnish support for career research investigators in dental schools. The contribution of the National Research Council to dental research is shown in Tables 1, 2, 3 and Figure 1.

Table XXIV-1. DENTAL RESEARCH SUPPORT, CANADA, 1945 - 1961. (all amounts to nearest one hundred dollars)

YEAR	N.R.C.	C.D.A.	OTHER*	TOTAL
	\$	\$	\$	\$
1945	9,000			9,000
1946	17,700			17,700
1947	26,100			26,100
1948	29,400	1,400		30,800
1949	29,000	2,300		31,300
1950	30,400	2,300		32,700
1951	28,700	4,100		32,800
1952	26,500	1,700		28,200
1953	34,200	1,300	18,400	53,900
1954	38,300	4,100	50,600	93,000
1955	36,800	3,100	55,800	95,700
1956	47,600	6,000	53,600	107,200
1957	46,700	7,600	66,700	121,000
1958	63,200	18,100	65,000	146,300
1959	78,000	7,100	62,000	147,100
1960	102,000	8,100	53,000	163,100
1961	131,600	11,400	77,200	220,200
Totals	775,200	78,600	562,300	1,356,100

* Includes: Department of National Health and Welfare
Division of Dental Research, University of Toronto
National Institutes of Health, U.S.A.

Table XXIV-2. GRADUATE AND UNDERGRADUATE DENTAL STUDENT SUPPORT, CANADA TO 1961

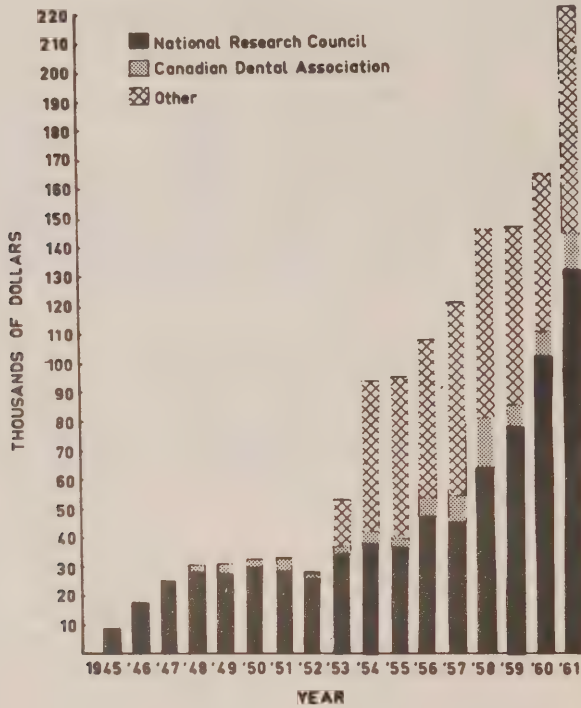
Year	Graduate			Undergraduate			Total
	C. D. A.	N. R. C.	Both	C. D. A.	N. R. C.	Both	
	\$	\$	\$	\$	\$	\$	\$
1948	1,400		1,400				1,400
1949	2,300		2,300				2,300
1950	2,300		2,300				2,300
1951	3,800	3,700	7,500				7,500
1952	1,700		1,700				1,700
1953	1,200		1,200				1,200
1954	3,700	6,000	9,700				9,700
1955	2,100	6,000	8,100	1,000		1,000	9,100
1956	5,600	10,500	16,100	400		400	16,500
1957	5,700		5,700	900		900	6,600
1958	12,400	11,200	23,600	4,500	5,300	9,800	33,400
1959	3,900	16,000	19,900	3,200	6,800	10,000	29,900
1960	2,500	27,500	30,000	5,400	5,100	10,500	40,500
1961	4,000	16,700	20,700	6,900	17,400	24,300	45,000
Total	52,600	97,600	150,200	22,300	34,600	56,900	207,100

Table XXIV-3. DENTAL RESEARCH PROJECT SUPPORT, CANADA, 1945-1961

Year	N. R. C.	Other	Total
	\$	\$	\$
1945	9,000		9,000
1946	17,700		17,700
1947	26,100		26,100
1948	29,400		29,400
1949	29,000		29,000
1950	30,400		30,400
1951	25,000		25,000
1952	26,500		26,500
1953	34,200	18,400	52,600
1954	32,300	50,600	82,900
1955	30,800	55,800	86,600
1956	37,100	53,600	90,700
1957	46,700	66,700	113,400
1958	46,700	65,000	111,700
1959	55,200	62,000	117,200
1960	69,100	53,000	122,100
1961	97,400	77,200	174,600
Total	642,600	502,300	1,144,900

XXIV-4. Since the mid-1940's, the Canadian dental research program has grown rapidly; and it is still growing (Figure 1). Financial support for this growth has not only come from the Canadian Dental Association and the National Research Council, but also from the extramural program of the Department of

Figure XXIV-1. FUNDS PROVIDED TO SUPPORT DENTAL RESEARCH IN CANADA, BY SOURCE, 1945 - 1961



National Health and Welfare, from the National Institutes of Health in the United States and from voluntary contributions of dentists, the latter notably in Ontario. This year (1961), well over \$200,000 will be spent for fellowships and grants-in-aid of dental research to support about ten dentists now acquiring research training, and to support current research activities by about 30 research workers (Table 1, Figure 1). Most of the latter are on the staff of dental schools, although some are in other university departments, and some are in activities other than academic teaching, for example, public health.

(b) DENTAL RESEARCH CONTRIBUTIONS

XXIV-5 The financial support of the research programs in dentistry has had two basic purposes, (a) to recruit potential research personnel and to assist them in acquiring the necessary training and (b) to acquire new knowledge. The contribution of the first of these in providing

trained staff to dental schools has already been mentioned. Efforts to recruit individuals for dental research have recently been increased. In 1955, the Canadian Dental Association began a program of undergraduate student support to allow highly qualified students an opportunity to work in research laboratories during the summer months and thus to have some research experience before graduation. Of 29 students so aided by the Association, five are already teaching in a dental school. The undergraduate program was augmented in 1958 by grants from the National Research Council, and during the summer of 1961 a total of 26 undergraduate dental students worked in dental research laboratories. Some idea of the growth of this program is shown in Table 2.

XXIV-6. Both the undergraduate and graduate student support programs have had a significant and stimulatory influence on dental education in this country. Competition is keen among undergraduates for summer research positions, and the awards are recognized as academic prizes. Undergraduates have become very much aware that research forms a vital and exciting part of the activity of a dental school, and ranks in importance with any other.

XXIV-7. The impact of research conducted by the staff on curriculum is perhaps even more significant. In undergraduate teaching, it has added life and vitality to the program; and it has permitted graduate programs to become established in the schools. It has also created a closer association with other departments in the university, as common research problems are shared and discussed.

XXIV-8. Dental research has also paid dividends in terms of the acquisition of new knowledge. Project support by dental granting bodies has not been limited to projects obviously related to teeth themselves - it has been used to further work of much broader biological significance. Thus, the list of 103 published papers

reporting the results of research supported by the Associate Committee on Dental Research of the National Research Council until 1959 contains reference to highly significant findings in a variety of fields, from technical dental problems, to basic hard tissue metabolism, bacteriology, pharmacology and others. Many, of course, relate to the understanding and prevention of dental diseases - caries, periodontal disease and child growth. This list of publications appears at the end of this appendix.

(c) RESEARCH VERSUS TREATMENT COSTS

XXIV-9. Canadians now invest considerably less than two cents per capita per year to support dental research, and at the same time they spend about \$5 per capita on treatment, most of which goes to repair damage already done. For every \$400 spent on treatment, only \$1 goes for research. For all other personal health care, the comparable ratio is 140/1. The dental treatment bill is about 1/15 that for all personal health care, yet support for dental research is only 1/40th that for medical research (Table 4). Obviously there is a serious imbalance between research and treatment costs in dentistry.

Table XXIV-4. TREATMENT VERSUS RESEARCH COSTS, DENTISTRY AND MEDICINE, CANADA, 1960.

	Cost		Ratio of Treatment to Research
	Treatment	Research	
	\$	\$	
dentistry			
total	100,000,000	250,000	
per capita	5.00	0.0125	400/1
medicine			
total	1,400,000,000	10,000,000	
per capita	83.00	0.50	140/1

(d) CANADIAN DENTAL RESEARCH WORKERS

XXIV-10. Canadian dental research workers now number about 30, most of whom met together for the first time in October 1961, at the first Canadian Conference on Dental Research. This conference provided an opportunity for representatives from each of the dental schools, the Royal Canadian Dental Corps, and the Department of National Health and Welfare, to become acquainted with one another, and to become familiar with the work being done in Canada. Plans are under way to bring about more such meetings.

XXIV-11. At the present time, ten dental graduates are undergoing research training, and most of these will be taken on the staff of the schools, as have others in the past.

(e) FUTURE OF DENTAL RESEARCH

XXIV-12. The necessary expansion of research will cost more money. It has been estimated that within the next fifteen to twenty years more than 100 dental research workers should be active in Canada (Table 5). If an average of \$7,500 per worker is provided for project support annually, more than three-quarters of a million dollars will be necessary for their work. Recently the Commission on the Survey of Dentistry in the United States ⁽¹⁾ stated that at least \$15,000 per worker should be provided for research support, and on this basis a million and a half dollars will be needed by 1978. Furthermore, if one adds to this an amount for training fellowships, for career investigators' salaries, and to compensate for the declining value of the dollar, then the final figure should probably be closer to three million dollars per year - still a modest sum when compared with the current dental treatment costs for the country.

(1) The Survey of Dentistry, The Final Report of the Commission on the Survey of Dentistry in the United States, American Council on Education, Washington, D.C.

Table XXIV-5. ESTIMATED FUNDS NECESSARY TO SUPPORT DENTAL RESEARCH, CANADA

Year	Numbers of Workers		Funds Necessary for Support	
	Theoretical Increase	Total	\$7,500 per Worker	\$15,000 per Worker
			\$	\$
1961		30	225,000	450,000
Needed Immediate Increase	30*	60	450,000	900,000
1968	15**	75	562,500	1,125,000
1973	15**	90	675,000	1,350,000
1978	15**	105	787,500	1,575,000

* Recommended by deans of dental schools.

** Ellis, R.G., "Manpower in Dentistry - The Dentist", Journal of the Canadian Dental Association, Jan. 1961, p.3.

NATIONAL RESEARCH COUNCIL

ASSOCIATE COMMITTEE ON DENTAL RESEARCH

PUBLICATIONS ARISING OUT OF WORK SUPPORTED

WHOLLY OR IN PART BY THE COMMITTEE

1945-1959

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NEW ZEALAND SCHOOL DENTAL NURSE SCHEME

XXV - 1 Children up to 13 1/2 years of age are eligible to receive free dental treatment under the school dental service. Treatment is offered to preschool children from 2 1/2 to 5 years of age. When the children enter grade one, they are enrolled in the service. Older children must first be made dentally fit at their parents' expense. After initial treatment, re-examination every six months and conservative treatment is given. There is a provision whereby children who fail to keep appointments or to maintain good oral hygiene can be suspended from the program.

XXV - 2 The school dental service is provided by about 800 women -- school dental nurses who have received two years of extensive and specialized dental training, in a special school conducted by the department of health. A school dental nurse is licensed to work only for the department of health in school dental clinics built to a standard plan and situated in school grounds.

XXV - 3 Each dental nurse is responsible for the dental care of about 500 children. She may perform only such dental services as the department of health authorizes. These include prophylaxis, the filling of both permanent and deciduous teeth with amalgam and silicate cement, pulp capping, the extraction of both permanent and deciduous teeth under local anaesthetic, the topical application of sodium fluoride, and dental health education. Only a limited amount of orthodontic treatment is included by referral to dentists in private practice.

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CONCLUSIONS ET RECOMMANDATIONS

DE L'EXPOSÉ DE

L'ASSOCIATION DENTAIRE CANADIENNE

PRÉSENTÉ À LA

COMMISSION ROYALE SUR LES SERVICES DE SANTÉ

CONCLUSIONS ET RECOMMANDATIONS

(a) CONCLUSIONS

223. Certaines personnes sont portées à simplifier le problème de santé dentaire; elles croient que le seul obstacle à un bon état de santé dentaire est d'ordre économique. Le problème est malheureusement plus compliqué. Il ne faut certes pas négliger le facteur économique, mais il n'est pas l'unique et même pas la cause la plus importante des désordres constatés dans la bouche des Canadiens.

(i) Diminution des besoins et augmentation des demandes pour des traitements dentaires.

224. On ne résoudra le problème de santé dentaire qu'à la seule condition d'abaisser la fréquence et l'incidence des maladies dentaires. Et la seule façon d'obtenir ces résultats est d'activer les recherches et de mettre en oeuvre plus de mesures préventives. Le premier pas à faire consiste à fluorer l'eau de tous les aqueducs. Des programmes soutenus d'éducation soulignant l'importance de l'hygiène dentaire, de la nutrition et des examens dentaires périodiques abaissent les besoins pour des traitements dentaires et augmentent les demandes pour ces traitements. Les ressources dentaires et les argents du Canada, à moins d'établir et de mettre en oeuvre des services préventifs de cette nature, seraient dépensés en pure perte en voulant restaurer la santé dentaire perdue par ces lacunes.

(ii) Augmentation des effectifs de la profession dentaire.

225. Le Canada, pour réaliser ces buts, a besoin d'un plus grand nombre de facultés dentaires et d'un plus grand nombre d'étudiants. Il faut faciliter l'accès aux

études dentaires en aplanissant les difficultés économiques qu'elles entraînent. Il faut encourager les jeunes gens des centres ruraux à embrasser la carrière de dentiste et rendre plus attrayant l'exercice dans ces centres ruraux. Il faut augmenter le nombre des auxiliaires et agrandir leur champ d'action. On pourrait, en établissant officiellement des programmes appropriés d'entraînement, améliorer le rendement des assistantes et des techniciens. Chaque hôpital devrait avoir un service dentaire et permettre aux dentistes d'y admettre leurs patients.

(iii) Système d'assurance dentaire

226. L'Association dentaire canadienne n'est pas en mesure de recommander maintenant un système national d'assurance-santé dentaire. Auparavant, il faut amplifier les recherches et les mesures préventives et augmenter les effectifs. (1)

227. Cependant, l'Association dentaire canadienne, si la Commission recommande d'établir un système d'assurance-santé dentaire, soumet les suggestions suivantes:

- a- Le plan de traitements dentaires devrait être précédé et accompagné de campagnes soutenues d'éducation en hygiène dentaire.

(1) On ne pourra jamais assez insister sur l'influence de l'éducation, de la prévention et des recherches sur l'élaboration d'une bonne santé dentaire. On a eu un exemple frappant des conséquences néfastes d'un plan qui mettait l'accent sur les traitements, quand on a constaté l'état des dents des soldats de Nouvelle-Zélande, au cours de la dernière grande guerre. Les statistiques compilées au cours de l'examen des dents des soldats ont montré que, malgré l'institution de services dentaires dans les écoles, en 1921, la situation était assez déplorable: 58 pour cent des recrues avaient besoin ou portaient des prothèses complètes ou partielles; 25 pour cent d'entre eux étaient complètement édentés; 25 pour cent avaient un prothèse complète, soit supérieure, soit inférieure; 8 pour cent portaient des partiels. Les avantages de ces services scolaires n'existaient plus à l'âge de l'entrée à l'armée.

- b- Il faudrait, à l'aide d'enquêtes entreprises au préalable et répétées chaque année sur les besoins de la population, sur les effectifs de la profession et sur les fonds disponibles, déterminer quels groupes d'âge devraient être couverts par le plan de traitements. On devrait, si possible, commencer par tous les enfants de trois à six ans, en gardant dans le plan, chaque année, les enfants qui ont vieilli d'un an. Aussi, dans dix ans, tous les enfants jusqu'à l'âge de seize ans feraient partie du plan.

Tableau no 1. ENFANTS ÉLIGIBLES AU PLAN D'ASSURANCE-SANTÉ DENTAIRE EN RAPPORT AVEC LES ANNÉES DE FONCTIONNEMENT DU PLAN.

Année de fonctionnement	Age de l'enfant														
	3	4	5	6	7	8	9	10	11	12	13	14	15	16	
1 ère	x	x	x	x											
2 ième	x	x	x	x	x										
3 ième	x	x	x	x	x	x									
4 ième	x	x	x	x	x	x	x								
5 ième	x	x	x	x	x	x	x	x							
6 ième	x	x	x	x	x	x	x	x	x						
7 ième	x	x	x	x	x	x	x	x	x	x					
8 ième	x	x	x	x	x	x	x	x	x	x	x				
9 ième	x	x	x	x	x	x	x	x	x	x	x	x			
10 ième	x	x	x	x	x	x	x	x	x	x	x	x	x	x	

- c- Les dentistes devraient prodiguer les services dans leur cabinet privé.
- d- Le paiement des services devrait se faire sur une base d'une somme pour chaque traitement selon une liste d'honoraires acceptable par la profession; le mode de paiement devrait tenir compte de la formation, de l'expérience et de la productivité du dentiste participant.
- e- Les dentistes, à leur choix, adhéreront ou non au plan.
- f- Un patient aurait le droit de choisir son dentiste et par

ailleurs le dentiste aurait le droit de choisir ses patients.

- g- Le plan serait administré sans but lucratif par une corporation mise sur pied par la profession, sur une base provinciale ; cette corporation serait administrée par un conseil de direction, comptant des profanes et des dentistes.
- h- La conduite des dentistes serait surveillée par les comités de discipline de la profession.
- i- Les patients n'auraient pas besoin d'autorisation pour recevoir les services compris dans le système d'assurance-santé.
- j- Les services prodigués par les spécialistes ne seraient reconnus que si les patients leur sont référés par des omnipraticiens.
- k- Il serait impossible d'inclure dans le plan tous les traitements et tous les services que les dentistes peuvent prodiguer. Par exemple de 50 à 75 pour cent des citoyens auraient besoin de traitements d'orthodontie. Ces traitements durent souvent de 6 mois à trois ans. Ces services, à cause du petit nombre des orthodontistes et des endroits où ils exercent, devraient se limiter aux cas graves. Il est nécessaire, quand les services doivent se limiter, de leur fixer un ordre de priorité de façon à diminuer les demandes pour des traitements considérés comme définitifs (p.e., ponts, prothèses, etc.); aussi pour qu'un plus grand nombre de patients puisse progressivement recevoir les traitements considérés comme essentiels (p.e., soins d'urgence) et qui contribuent le plus à préserver l'intégrité des dents et de leur tissu de support (p.e., traitements préventifs et traitements d'entretien). L'Association suggère la

priorité suivante pour les traitements dentaires:

- traitement d'urgence pour soulager la douleur et prendre soin des infections;
- examens périodiques cliniques et radiologiques; prophylaxie; applications topiques de substances prévenant la carie; revue des habitudes alimentaires et hygiéniques; examens supplémentaires (p.e., tests de susceptibilité à la carie);
- soins planifiés et continus pour garder la bouche dans le meilleur état possible; obturation des caries; traitement précoce des affections des gencives; prévention et arrêt précoce des malocclusions;
- traitements définitifs, tels que prothèses et traitement des malocclusions.

l- Le financement d'un système de traitements dentaires devrait tenir compte des différences qui peuvent exister entre diverses municipalités, c'est-à-dire que des villes, pour certaines raisons, pourraient être cotisées à un taux différent. Par exemple, il ne serait pas juste qu'une ville qui a eu la sagesse de fluorer l'eau de son aqueduc et qui, de ce fait, a abaissé de 60 pour cent l'incidence de la carie de ses citoyens - paie le même pourcentage de taxes pour les traitements dentaires que d'autres qui ne jouissent pas des avantages du fluor. Il serait bon aussi de songer à imposer des taxes sur des aliments ou des breuvages non essentiels qui favorisent la carie dentaire; ces taxes spéciales pourraient contribuer indirectement au contrôle de la carie.

m- Il faudrait, tous les ans, faire des relevés sur l'état de la santé dentaire de la population pour établir les résultats du système et pour lui faire subir, si nécessaire, certaines modifications; car on ne peut juger de la valeur

d'un système de traitements dentaires en compilant seulement la somme des traitements prodigués, puisqu'on ne connaît pas d'une façon précise l'accumulation des traitements en retard.

228. La profession dentaire se fixe comme seul objectif d'améliorer le niveau de la santé dentaire jusqu'à ce que tous les Canadiens puissent en jouir. L'Association dentaire canadienne, depuis longtemps, s'est fait une idée sur la façon d'atteindre cet objectif; elle a encore, à son assemblée générale de 1960, défini les méthodes par lesquelles elle croit que ce but peut se réaliser:

"Il est impossible, au Canada, d'organiser un système complet de traitements pour toutes les classes de la population; il y a trop de monde qui ont besoin de traitements et la proportion des dentistes en rapport avec la population est trop faible. L'organisation d'un programme de restaurations dentaires pour les personnes de tous âges ne conférerait pas une bonne santé dentaire à la population actuelle et elle nuirait à la réalisation de cet objectif pour les générations futures.

C'est pourquoi, le premier objectif de tout plan de services dentaires qui serait mis sur pied dans ce pays doit être de conserver intacte la denture de tout enfant qui vient au monde. La nation canadienne aura de bonnes dents et possédera les connaissances nécessaires pour ce faire, quand on aura mis en force un programme raisonnable de prévention pour les jeunes enfants; ce programme devra aussi comprendre des mesures éducatives et la dissémination de notions d'hygiène dentaire publique pour l'enfant et ses parents. On pourra s'occuper des adultes seulement quand on aura des preuves que les plus jeunes membres de la population ne

souffriront pas de l'attention qu'on portera à ces adultes" (1)

229. L'Association dentaire canadienne s'oppose fermement à la mise en force d'un système qui comprendrait le traitement complet de toutes les personnes de tous âges.

(5) RECOMMANDATIONS

(i) Fluoration

230. La Commission d'enquête sur la fluoration d'Ontario déclarait dans son rapport remis en 1961 que "la fluoration de l'eau de consommation, en vertu d'une législation conforme, ne constituerait pas une entrave à des droits civils fondamentaux ou à la liberté des individus, que la Législature a mission de protéger et de conserver" (2). La Commission disait en outre:

"Quelques conseils de ville, il y a quelques années, ont sondé l'opinion publique sur cette question en tenant des referendums... Nous sommes persuadés que cette question ne doit pas se décider au niveau local à l'aide d'un plébiscite. Ce problème a plusieurs aspects extrêmement techniques et il est compliqué au point de vue scientifique. Il ne s'apparente guère à une décision que devrait prendre un conseil municipal au sujet de la pratique des sports, le dimanche, ou au sujet de représentations offertes au public... La Commission a consacré presque deux ans à étudier cette question et elle a réclamé l'aide et les conseils de personnages très qualifiés au point de vue scientifique... La plupart des citoyens, si leur municipalité demandait leur avis sur cette question par referendum, devraient

(1) Délibérations de l'Association dentaire canadienne, 1960, p. 19.

(2) Rapport de la Commission chargée d'étudier la question de la fluoration de l'eau des aqueducs des municipalités, 1961, p. 121.

prendre leur décision en s'appuyant peut-être sur des renseignements fautifs et trompeurs" (1)

231. On recommande que les législatures provinciales rendent obligatoire la fluoration de l'eau des aqueducs par des lois semblables à celles qui existent pour contrôler la qualité de l'eau.
232. On recommande de plus qu'une province, qui rend obligatoire la fluoration, fasse appel au gouvernement fédéral pour qu'il l'aide à défrayer le coût de cette mesure; le gouvernement fédéral pourrait payer 50 pour cent des déboursés et les provinces et les municipalités, chacune 25 pour cent.
233. On recommande que le ministère de la Défense nationale établisse la fluoration aux endroits qui sont sous sa juridiction et où y vivent des membres de son personnel et leur famille.
234. On calcule que la fluoration pour tout le Canada coûterait environ \$1,500,000., par année.
235. La fluoration abaisserait en moyenne de 60 pour cent le nombre des nouvelles caries. Cela veut dire une diminution considérable des frais de traitement et un soulagement notable au sein des effectifs chargés de ces traitements.
- (ii) Programmes d'éducation en hygiène dentaire
236. La prévention des maladies dentaires, dans une très grande mesure, dépend surtout de l'individu lui-même. Il faut éduquer les gens en hygiène dentaire pour les rendre conscients de ce fait. Il y a actuellement au Canada des campagnes d'éducation intensive en hygiène dentaire qui se font à divers degrés. Des campagnes du genre devraient se faire dans toutes les régions ou toutes les unités sanitaires du pays; elles devraient être sous la direction de dentistes spécialisés en hygiène publique.

(1) Ibid., p. 118.

237. Ces campagnes devraient s'adresser aux enfants d'âge préscolaire et aux jeunes écoliers. On devrait examiner périodiquement ces enfants et, si des traitements s'imposent, les diriger chez les praticiens privés en avvertissant les parents. On devrait enseigner aux enfants des méthodes reconnues d'hygiène dentaire et de nutrition.
238. On devrait renseigner les parents à des cliniques prénatales et à des cliniques de bébé, sur les exigences de leurs enfants en matière de santé dentaire.
239. Le financement de ce système se ferait grâce à des subventions des gouvernements/fédéral et provincial et des municipalités.
240. Ces campagnes feraient connaître les bienfaits d'une bonne santé dentaire et réduiraient considérablement, au profit des parents, l'accumulation des traitements retardés. Les gens seraient invités à se préoccuper des traitements avant que les lésions deviennent graves. L'éducation en hygiène dentaire est un des facteurs les plus importants pour le contrôle éventuel des maladies dentaires.
- (iii) Recherches dentaires
241. On consacre actuellement \$1. à la recherche sur chacun des \$400. qui sont dépensés pour des traitements. Il faut augmenter considérablement l'argent disponible pour les recherches, si on veut solutionner la question de santé dentaire.
242. Les organismes fédéraux qui aident actuellement les recherches dentaires doivent réaliser la nécessité de former du personnel pour ce genre de travail, d'augmenter le nombre de ceux qui s'y consacrent et de leur fournir suffisamment d'argent pour mener à bien leurs projets.
243. Il faudra augmenter les sommes destinées aux recherches dentaires parallèlement à celles consacrées à d'autres projets de recherches qui se font de plus en plus

nombreux. Le montant nécessaire à des recherches dentaires se chiffrera éventuellement à \$3,000,000., par année.

244. Des rapports étroits devront s'entretenir entre les organismes chargés de ces octrois et l'Association dentaire canadienne.

245. En intensifiant les recherches, on peut accorder un apport considérable à l'enseignement, à l'exercice et à la prévention.

(iv) Programmes de traitements pour les assistés d'Etat

246. Les assistés d'Etat ne peuvent pas, pour la plupart, se payer les traitements dont ils auraient besoin. Cinq provinces ont actuellement des systèmes par lesquels ces individus, ou quelques-uns d'entre eux, peuvent se faire traiter.

247. On recommande que les provinces établissent un système par lequel tous les assistés d'Etat bénéficient des traitements dentaires dont ils ont besoin.

248. On suggère, de plus, que ces systèmes soient sous la direction de la profession dentaire. Cette façon de faire donne de bons résultats en Alberta, en Colombie Britannique, au Manitoba et en Ontario.

249. On estime que le coût de ces initiatives serait d'environ \$6,000,000., par année.

250. Le gouvernement provincial, après entente avec l'organisme dentaire provincial chargé de l'administration de ce plan, donnerait une subvention annuelle de tant par tête.

251. Ces programmes permettraient à cette catégorie de la population de recevoir, sans qu'elle s'impose des sacrifices considérables, les traitements appropriés.

(v) Statistiques sur la santé dentaire

252. Les statistiques au sujet de l'état de santé dentaire des Canadiens et des traitements qu'ils reçoivent sont inadéquates. Il faut pourtant utiliser ces renseignements pour établir les programmes à venir. Il faut aussi analyser avec soin les raisons d'être du peu de demandes pour des soins dentaires pour que, dans les plans dentaires, on puisse mettre l'accent sur les facteurs en cause. Il serait aussi intéressant de savoir, en tenant compte des ressources financières, disponibles, quelle somme de traitements peuvent fournir des effectifs connus.

253. La Commission royale sur les services de santé est invitée à entreprendre, en collaboration avec l'Association dentaire canadienne, une étude précise des besoins en santé dentaire et des facteurs qui influencent la demande pour des traitements. Cette étude fournirait des renseignements indispensables à l'établissement pour l'avenir de plans de santé dentaire. L'Association dentaire canadienne offre spontanément ses services pour l'élaboration d'une étude du genre.

(vi) Index national de santé dentaire

254. Les nations qui font partie de l'Organisation mondiale de la santé sont invitées, en vertu de la charte de cet organisme et tel que spécifié dans son bulletin technique, à amasser des statistiques au sujet de la chose dentaire.

255. Le gouvernement fédéral, pour répondre à cette invitation de l'O. M. S., devrait créer un système par lequel, grâce à des compilation faites chaque année sur l'état de santé dentaire de la population, il pourrait maintenir à date l'index de santé dentaire qu'a réalisé l'Association dentaire canadienne.

(vii) Facultés dentaires

256. Il faut prendre immédiatement les dispositions

nécessaires pour former un plus grand nombre de dentistes et d'hygiénistes dentaires; autrement la situation deviendra bientôt intenable. Pour ce faire, il faut construire d'autres facultés dentaires.

257. Il faut prévoir tout de suite la construction d'écoles dentaires à l'Université de Colombie Britannique, de Saskatchewan et de Laval. Il faudrait fonder une autre faculté dentaire en Ontario. Il faudrait agrandir la faculté de l'Université de Dalhousie et établir des cours pour les hygiénistes à l'Université de Manitoba, à celle de Montréal et à celle de McGill ainsi qu'aux quatre nouvelles facultés projetées.

258. Ces déboursés à faire pour ces projets seraient de l'ordre de \$20,000,000.

Le gouvernement fédéral, parce que cette question est en rapport étroit avec la santé de la population, devrait contribuer à l'augmentation des disponibilités des facultés existantes et à la création de nouvelles facultés qui formeraient aussi des hygiénistes; le gouvernement pourrait offrir de défrayer une partie des dépenses capitales de la construction et de l'équipement de ces écoles.

259. C'est la seule façon de former du personnel entraîné en nombre suffisant pour prendre soin des nouvelles générations de Canadiens.

(viii) Augmentation du nombre des professeurs

260. La pénurie actuelle de professeurs dans les facultés dentaires s'aggraverait en instituant de nouvelles facultés. Le besoin se fait sentir surtout chez les professeurs de carrière qui consacrent tout leur temps à l'enseignement.

261. On recommande au gouvernement fédéral de donner des subventions plus substantielles aux universités pour que les facultés dentaires augmentent leur proportion de professeurs à temps-complet, en rapport à ceux qui travaillent à temps partiel.

262. On suggère de mettre des sommes plus substantielles à la disposition des dentistes qui veulent suivre des cours post-universitaires pour se préparer à la carrière de professeur.

(ix) Meilleurs salaires aux dentistes hygiénistes

263. Les agences de santé, pour s'approprier et garder des dentistes de valeur, doivent être en mesure de leur offrir des émoluments qui concurrencent ceux de l'exercice privé.

264. Les revenus nets d'un dentiste en pratique privée dépassent \$10,000., par année, tandis que ceux des dentistes salariés sont de \$7,500.

265. Il serait souhaitable que, pour donner aux programmes d'hygiène dentaire l'ampleur et l'élan qui s'imposent, les agences de santé adoptent une échelle de salaires qui puissent se comparer aux revenus d'exercice privé.

(x) Plus grand nombre de spécialistes

266. Il y a au Canada une pénurie grave de spécialistes.

267. Les facultés dentaires devraient former un plus grand nombre de spécialistes qu'elles ne le font présentement. Les écoles qui n'ont pas de disponibilités pour former des spécialistes devraient être encouragées à le faire. Le gouvernement devrait donner dans ce but des octrois aux facultés dentaires.

(xi) Recrutement

268. Le comité national de recrutement de l'Association dentaire canadienne a élaboré un programme pratique pour faire connaître à la population les avantages de la carrière de dentiste. Des organismes dentaires, au niveau provincial et municipal de tout le pays, ont institué des comités de recrutement. Ces démarches ont eu du succès puisqu'en 1961 le nombre des candidats a augmenté. Mais, si la profession dentaire veut trouver des bons étudiants en nombre suffisant, il faudra de toute nécessité approfondir le problème et

trouver des solutions adéquates.

269. On recommande à la Commission royale sur les services de santé d'entreprendre une étude sérieuse du problème de recrutement pour les professions sanitaires.

270. Cette enquête menée par le personnel qualifié de la Commission peut, par exemple, trouver les raisons pour lesquelles des étudiants qui ont les mêmes intérêts académiques et la même formation choisissent ou ne choisissent pas certaines carrières dans le domaine de la santé et quels sont les facteurs qui influencent leur choix.

(xii) Frais de scolarité

271. Il faut pousser les étudiants les plus doués à poursuivre leurs études à l'Université. Les seuls critères pour être admis à l'Université devraient être le talent et les succès académiques. Les études universitaires sont l'objet de subventions généreuses, mais les étudiants doivent encore payer des frais de scolarité qui peuvent être au-dessus de leurs moyens. Il semble contradictoire d'exiger des frais d'instruction au niveau universitaire tandis qu'ils soient gratuits au niveau des écoles secondaires.

272. Les frais de scolarité à l'Université devraient constamment diminuer jusqu'à ce qu'ils soient supprimés. Pour commencer, les frais de scolarité de cours tels que la chirurgie dentaire devraient être fixés au même niveau que ceux d'autres facultés, car ce cours est dispendieux et il prépare des professionnels pour une discipline qui souffre actuellement d'une pénurie de membres.

273. L'abolition de cette barrière économique à la poursuite d'études avancées permettrait à un plus grand nombre d'étudiants d'entrer à l'Université.

274. L'abolition des frais de scolarité dans les facultés telles qu'elles existent actuellement coûterait \$700,000., par année.

275. Le gouvernement fédéral devrait hausser ses subventions annuelles aux universités pour qu'elles puissent baisser les frais de scolarité.
276. Cette mesure augmenterait la qualité et la quantité des étudiants dans les universités.
- (xiii) Prêts aux étudiants
277. Plusieurs jeunes gens, même si les frais de scolarité sont abolis, auraient des difficultés à s'inscrire en chirurgie dentaire, parce qu'ils ne pourraient pas subvenir à leurs besoins durant leur cours. Ce fardeau est particulièrement lourd pour les étudiants de la campagne et pour ceux qui doivent vivre loin de leur foyer. Les dentistes ont aussi parfois peine à s'inscrire à des cours post-universitaires ou gradués.
278. On demande d'instituer un fonds de prêts pour les étudiants sous-gradués et pour les gradués.
279. Les étudiants pourraient emprunter jusqu'à \$1,000., par année. Ce prêt serait remboursable après la fin des études. Par exemple, si un étudiant emprunte \$500., par année, durant son cours, il remettrait les \$2,000. à raison de \$500., par année, durant les quatre ans qui suivent la fin de ses études. Les prêts, durant cette période, seraient sans intérêt. Les facultés dentaires recommanderaient des noms d'élèves pour ces prêts; un comité national, composé de représentants des facultés dentaires, de la profession et du gouvernement ferait un choix parmi ces demandes; on donnerait la préférence (a) aux étudiants venant des campagnes; (b) aux étudiants éloignés de leur foyer; (c) aux étudiants post-universitaires ou gradués.
280. Le fonds nécessiterait au début une mise de \$100,000. Plus tard, il serait peut être nécessaire de le porter à \$500,000. L'Association dentaire canadienne serait disposée.

à fournir la moitié du montant initial et elle demande que le gouvernement fédéral fournisse l'autre \$50,000.

281. Un fonds semblable augmenterait le nombre des étudiants en chirurgie dentaire, particulièrement de ceux qui viennent des campagnes.

(xiv) Déboursés pour des études post-universitaires

282. Les dentistes, pour améliorer les services dentaires qu'ils prodiguent à la population canadienne, devraient être encouragés à poursuivre leur formation au delà du stage universitaire qui leur donne le droit d'exercer.

283. Ces cours post-universitaires n'entraînent pas seulement des dépenses pour des frais de scolarité, mais aussi une perte de revenus pour ceux qui laissent leur cabinet, car les dépenses fixes d'un cabinet se poursuivent durant l'absence du dentiste. Ces dépenses empêchent plusieurs dentistes d'assister à des cours de perfectionnement ou à d'autres genres de cours d'études post-scolaires.

284. On recommande que les règlements d'impôt fédéral et provincial soient amendés pour permettre aux dentistes qui assistent à des cours donnés sous l'égide d'universités ou d'associations dentaires reconnues de déduire certaines dépenses de leur revenue.

(xv) Etudiants des régions rurales

285. Les étudiants qui viennent de petites municipalités retournent généralement dans des municipalités semblables pour y exercer; de même, les petits centres ont peu d'attraits pour les dentistes qui ont grandi dans des villes populeuses. On devrait recevoir dans les facultés dentaires plus d'étudiants venant des campagnes.

286. Les facultés dentaires, puisqu'actuellement la distribution des dentistes entre les villes et les campagnes n'est pas proportionnée, devraient favoriser l'admission des candidats venant des campagnes, à condition que tous

les autres facteurs soient égaux.

287. On croit, qu'en acceptant un plus grand nombre d'étudiants venant des campagnes, plus de diplômés iront exercer dans les petits centres.

(xvi) Installation des dentistes

288. Les dentistes ne sont pas portés à installer leur cabinet dans de petites municipalités.
289. Il faudrait trouver des moyens pour encourager les dentistes à s'installer dans des municipalités où il n'y a pas de dentiste permanent.
290. On pourrait aider ces dentistes en (a) leur fournissant un cabinet tout équipé, de préférence dans l'hôpital de la région; (b) en leur garantissant un revenu minimum en échange de services qu'ils prodigueraient aux enfants. Les adultes seraient traités sur une base d'honoraires pour chaque traitement.
291. Le ministère provincial de la santé, en collaboration avec la profession dentaire, pourrait analyser les demandes des municipalités pour un dentiste, en se rendant compte si la population de ces villes est suffisante pour y faire vivre un dentiste et en évitant d'empiéter sur un territoire déjà desservi par un autre dentiste; la province et la municipalité, si toutes les conditions conviennent, pourraient diviser également les déboursés qu'entraînerait cette initiative.
292. Un plus grand nombre de dentistes seraient ainsi encouragés à se fixer dans des régions qui n'ont pas de services dentaires disponibles.

(xvii) Régions rurales ou centres éloignés

293. Quelques régions n'ont pas une population suffisante pour justifier la présence continue d'un cabinet dentaire. L'organisation des services dentaires pour ces régions crée un problème compliqué.

294. Les gouvernements provinciaux devraient retenir les services à temps complet de dentistes ambulants qui desserviraient ces régions.
295. On fournirait à ces dentistes des automobiles et un équipement dentaire démontable. Ils travailleraient à salaire et traiteraient les enfants; ils pourraient aussi, après les heures régulières de clinique, traiter les adultes sur une base d'honoraires pour chaque traitement.
296. Ces services devraient être subventionnés par des octrois fédéraux de santé.
297. Ce système permettrait de mettre des services dentaires à la disposition des populations des centres éloignés.
- (xviii) Accroissement des services auxiliaires
298. Il faut, pour augmenter le volume des traitements prodigués par la profession dentaire, élargir le champ d'activité des auxiliaires.
299. On recommande de subventionner des études-témoins ou des recherches sur le rendement du personnel auxiliaire pour qu'on puisse trouver les meilleurs façon d'utiliser son travail en exercice privé et dans des services de santé publique. Ces études doivent être réalisées dans des facultés dentaires.
300. On pourrait former un comité national d'enquête formé de représentants de toutes les universités ayant une faculté dentaire pour coordonner ces projets de recherches.
301. Il n'y pas actuellement d'octroi du gouvernement susceptible d'être utilisé à des recherches de ce genre. On prie ce gouvernement de donner un octroi de \$50,000. pour commencer ces recherches.
302. Ces études fourniraient des renseignements précieux sur la façon d'intégrer efficacement les auxiliaires dentaires dans l'équipe de santé dentaire.

(xix) Formation des techniciens et des assistantes
dentaires

303. Il n'y a pas actuellement de programme officiel pour la formation des assistantes dentaires et des techniciens. La profession a besoin d'assistantes plus compétentes. Il faut élever les standards et améliorer la formation des techniciens pour qu'ils puissent répondre aux exigences de plus en plus complexes de leur travail, plutôt que d'augmenter la proportion des techniciens en rapport avec le nombre de dentistes.

304. La formation des assistantes et des techniciens, à cause des facilités cliniques qu'on y trouve, pourrait se faire dans les facultés dentaires des universités. On pourrait améliorer l'entraînement des assistantes et des techniciens actuels en leur offrant des cours définis à l'avance.

305. On recommande que le gouvernement fédéral et que celui des provinces s'entendent pour inclure, au nombre des cours d'arts et métiers qui reçoivent des allocations, ceux des techniciens et des assistantes dentaires.

(xx) Services dentaires hospitaliers

306. Il faudrait installer un service dentaire dans chaque hôpital général, dans les régions où il serait possible de recruter un personnel dentaire et ce service devrait prodiguer des services aux patients hospitalisés comme à ceux des dispensaires.

307. Les règlements de ces services dentaires devraient contenir des clauses qui permettraient aux dentistes de prodiguer des services qui seraient en accord avec les notions les plus récentes de la science dentaire, en tenant compte du jugement professionnel et de la compétence du ou des dentistes qui seraient dûment nommés membres du personnel professionnel de l'hôpital.

(xxi) Admission des patients à l'hôpital

308. Les dentistes qui font partie du personnel des hôpitaux devraient avoir la liberté de jouer leur rôle professionnel et d'assumer la pleine responsabilité de leurs services, sans être gênés par des règlements qui nuiraient à leur plein épanouissement.
309. Les lois provinciales ou les règlements des hôpitaux devraient être amendés pour permettre aux dentistes qui font partie du personnel d'admettre leurs patients dans les hôpitaux.
310. Les patients admis pour des traitements dentaires devraient subir un examen médical par un médecin.
311. Les dentistes pourraient ainsi faire admettre des patients dans les hôpitaux au même titre que les autres disciplines de l'hôpital.

(xxiii) Dispensaires

312. Les hôpitaux, surtout les hôpitaux généraux, étant devenus des centres de santé, devraient instituer des dispensaires pour les soins dentaires destinés particulièrement aux individus à revenus modiques.
313. Les dentistes à qui on a accordé les privilèges d'un hôpital devraient, à tour de rôle, s'occuper de ces patients, en leur fixant des honoraires comparables à ceux qui sont de mise dans les autres services. Les dentistes exerçant dans les hôpitaux devraient pouvoir disposer de facilités, de personnel auxiliaire et d'outillage convenables qui leur permettent de prodiguer les meilleurs traitements possibles.

(xxiv) Centre pour les becs-de-lièvres

314. On devrait établir, dans les hôpitaux pour enfants et dans les hôpitaux généraux qui disposent d'un service de pédiatrie et d'autres services connexes, des centres où seraient traités les cas de becs-de-lièvres.

315. La médecine, la chirurgie dentaire, la chirurgie, la chirurgie buccale, l'orthodontie, la psychiatrie, l'orthophonie, l'assistance sociale et d'autres disciplines sont intéressées aux enfants qui naissent avec un bec-de-lièvre ou une fissure palatine. Il faudrait faire des recherches en même temps que de prodiguer des traitements, puisqu'il y a encore beaucoup à apprendre dans ce domaine.

